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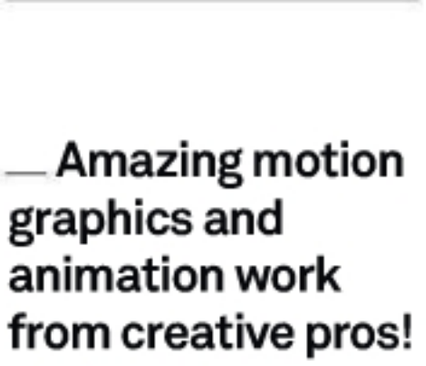

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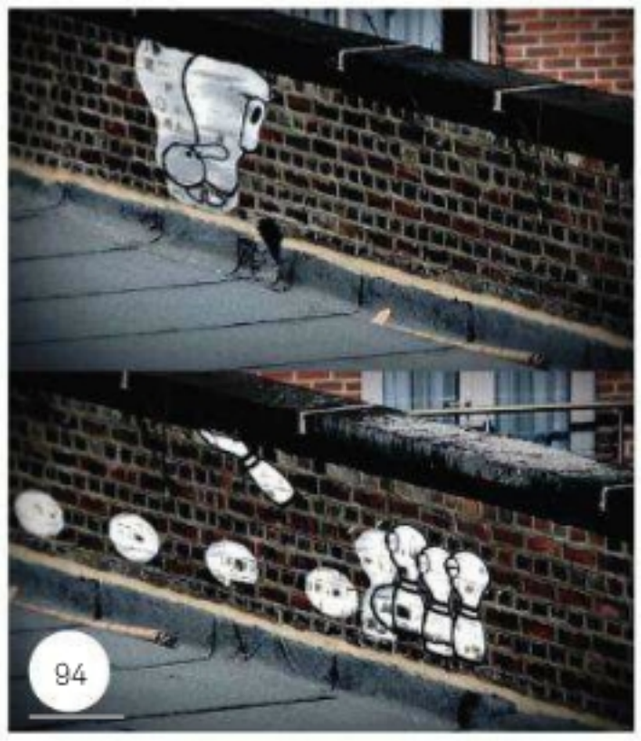

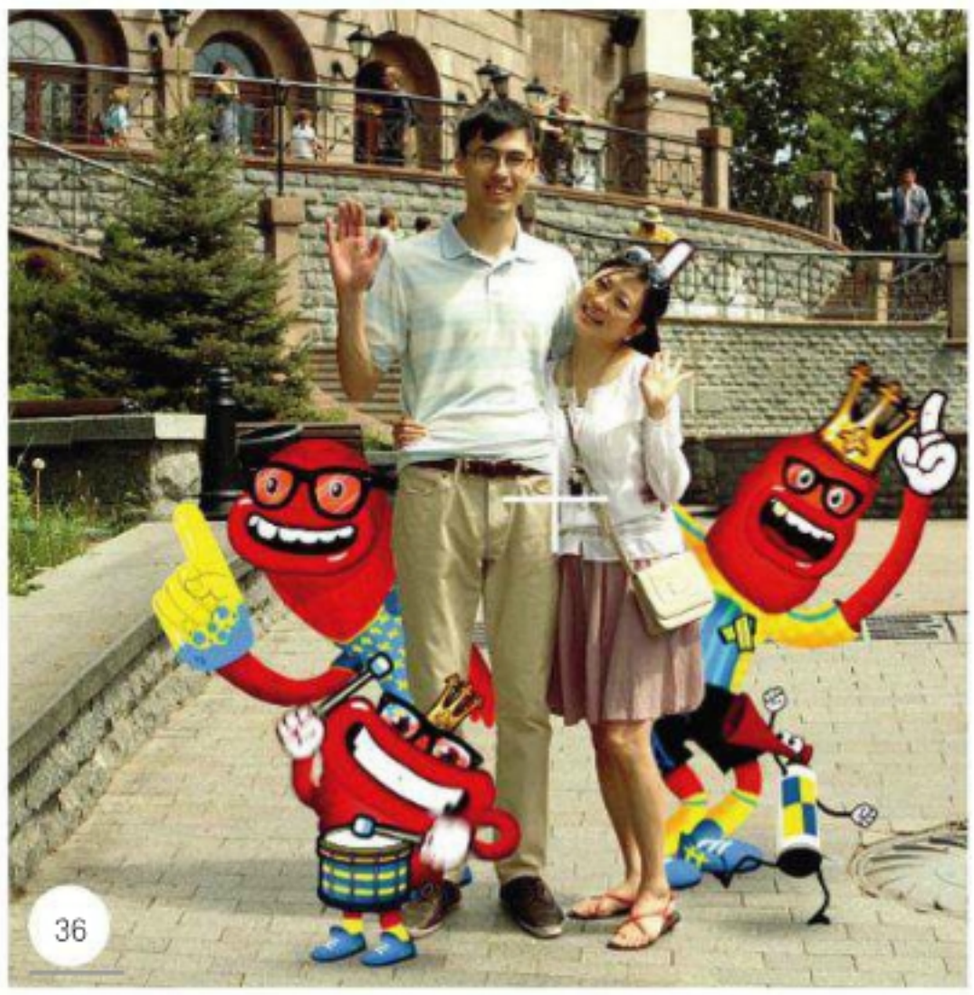

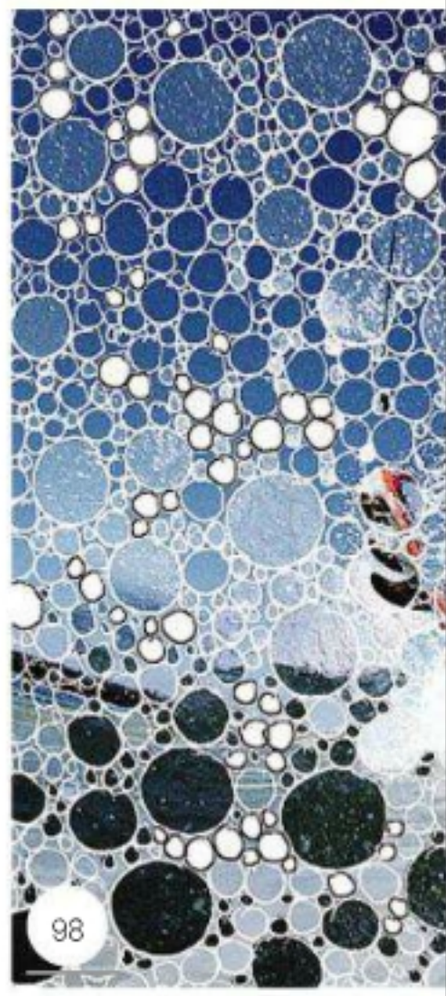

Welcome to the latest instalment of our Pro Software Skills specials. So far we've brought you professional guides to Photoshop, InDesign and Illustrator – and now that's joined by After Effects. See page 42 to find out how you can collect the set and further your skills as an all-round creative professional.

After Effects is the de facto standard when it comes to motion graphics and animation and has an extremely powerful toolset. Throughout this guide we bring you tips, tutorials and tricks that will enable you to master the software and make your motion graphics the best they've ever been.

And if you're a print designer, familiar with Photoshop and Illustrator, then this guide will help you get to grips with the sometimes daunting After Effects toolset. You may want to start with our Pro Guides – beginning on page 10. These give you an idea of After Effects key functions and uses, and we hope they'll be invaluable reference tools.

Enjoy the issue, and we look forward to seeing your motion graphics and animation projects.

The Computer Arts team
computerarts@futurenet.com
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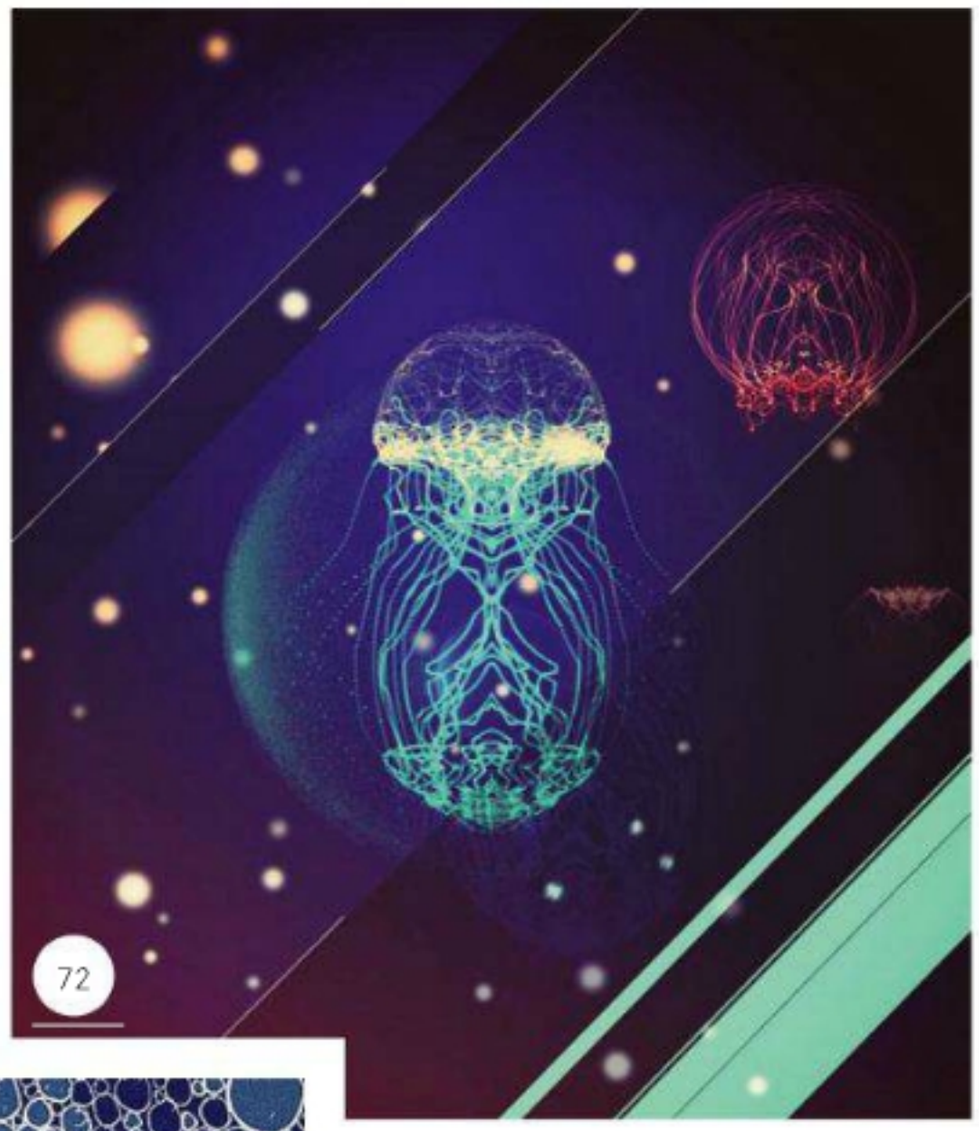

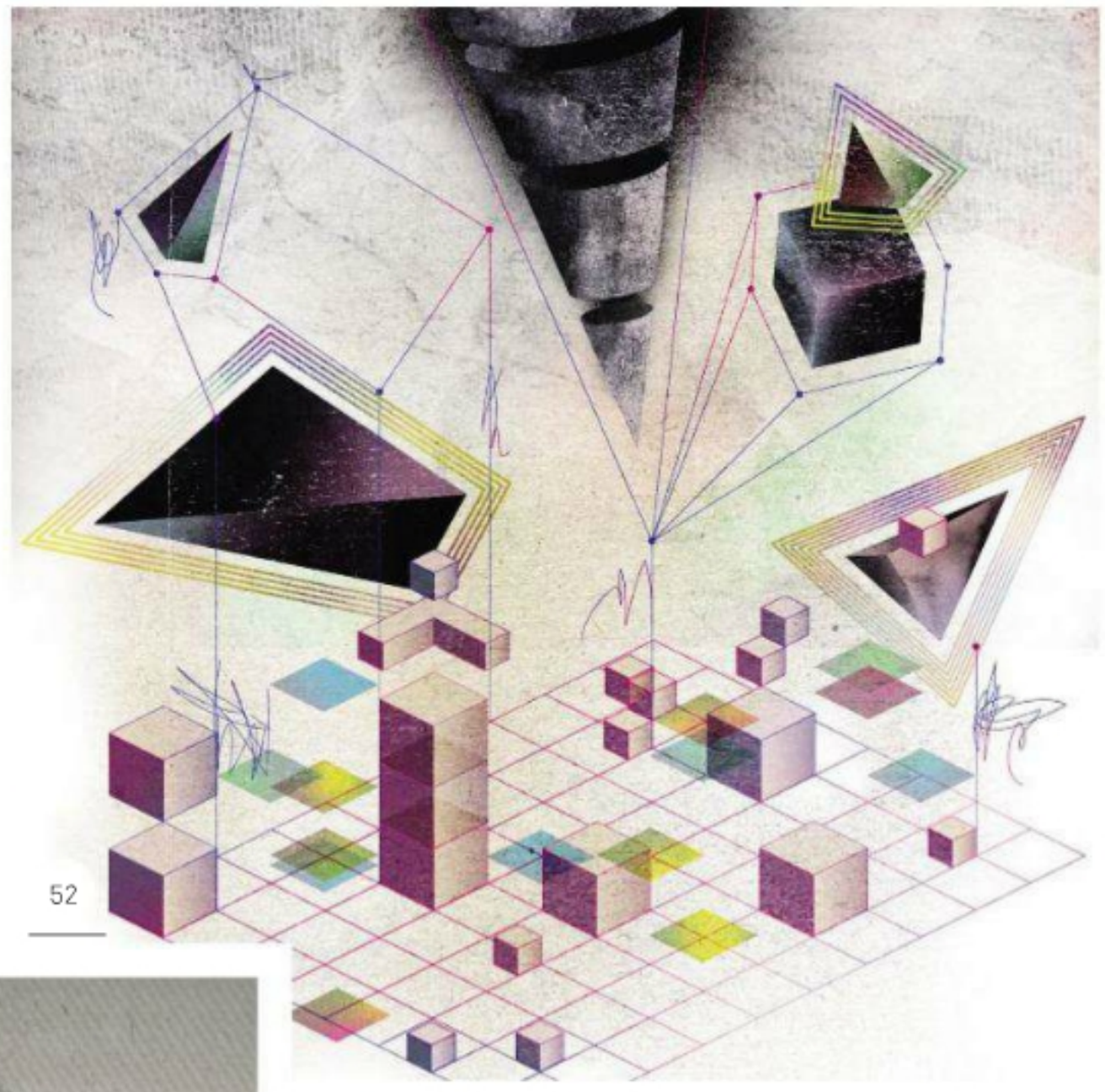

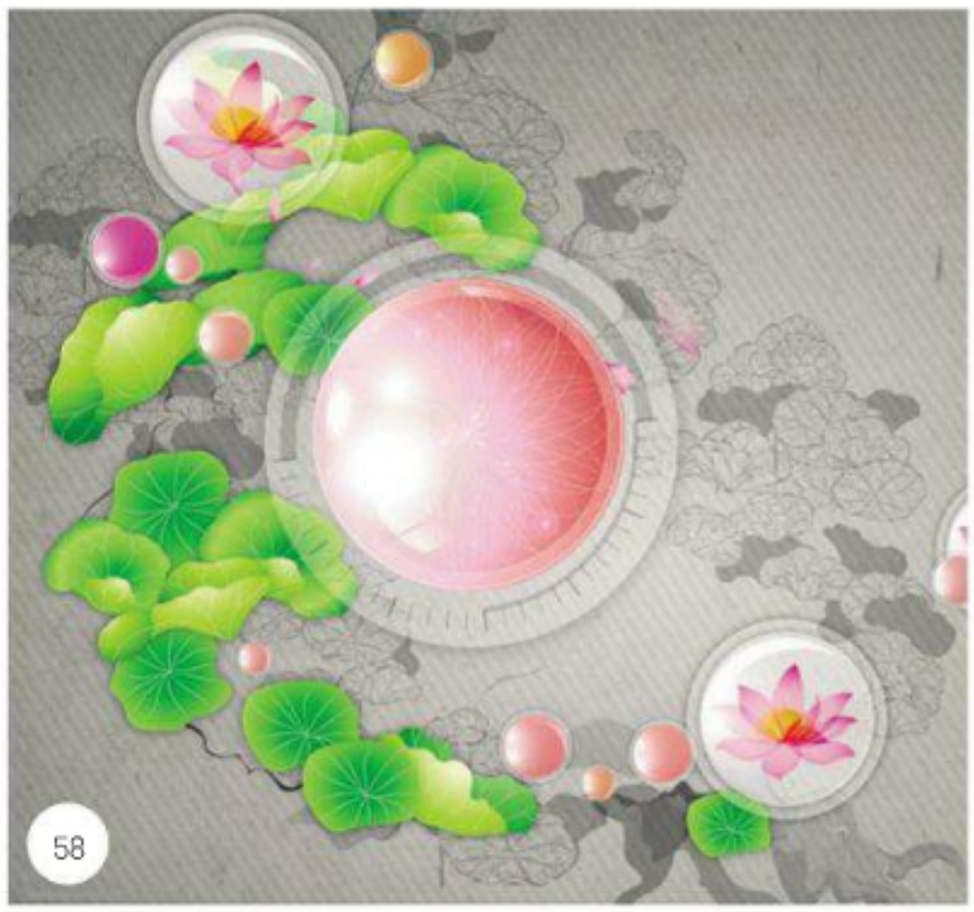

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CREDITS

Incredible animators, motion graphics pioneers and illustration geniuses. Introducing the talented creatives behind *Pro Software Skills: After Effects*...

Borja Bonaque
Borja Bonaque is the talented illustrator behind our Pro Guides series. His clients include *Wallpaper**, Zoo York, *New Scientist* and *Wired* magazine. See more at www.borjabonaque.com

Falko Ohlmer
Opening the '50 tips' features in *Pro Software Skills: After Effects* are stunning illustrations from this Hamburg-based creative. Find out more about Ohlmer and his illustration work at www.falko-ohlmer.com

Broken Antler
Ben Adam is a freelance director and designer who works under the name Broken Antler. Check out his tutorials on pages 80 and 90 and his profile on page 74. www.brokenantler.co.uk

Adam Jenns
The founder and managing director of motion design specialist Mainframe, Adam Jenns started his career as a runner many moons ago before founding the company. www.mainframe.co.uk

Jonathan Notaro
Jonathan Notaro is founder and executive creative director of motion and interactive company Brand New School. Check out our profile on page 98. www.brandnewschool.com

Vivian Kim
New York-based motion artist Vivian Kim has worked in both LA and NY in post-production, broadcast, film, and interactive for over a decade. Read our profile on page 66. www.vivianykim.com

Thiago Maia
Thiago Maia is a London-based director and animator. After working for clients such as Virgin and Sky, he opened his own studio, Cake. See page 94. www.thiago.tv www.eatcake.tv

Stuart Preece
Having previously worked at Love Creative, Stuart Preece branched out on his own under the name Digital Cavalier. Read his animation tutorial on page 62. www.digitalcavalier.co.uk

James Wignall
James Wignall works as a director and animator in London. He was recently named as an ADC Young Gun and his clients include MTV, Nickelodeon, Sony, VH1 and Nike to name a few. www.mutanthands.com

Jing Zhang
London-based Jing Zhang is a creative designer with clients including 3 Mobile, Ford and Osiris Shoes. She reveals the secrets of Expressions on pages 22 and 58. www.mazakii.com

Lee Walker
Previously at VMTV, Lee Walker is director of motion GFX at Mainframe. Read our in-depth profile of the motion graphics and animation company, starting on page 36. www.mainframe.co.uk

Danny Rosenbloom
Danny Rosenbloom is MD of Brand New School and has previously worked at Psyop and Razorfish. Check out our profile on page 98. www.brandnewschool.com

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Future Publishing Ltd, 30 Monmouth Street, Bath BA1 2BW
Phone 01225 442 244 **Fax** 01225 732 275
Email computerarts@futurenet.com
Web www.computerarts.co.uk

Editorial
Rob Carney Editor
nick.carson@futurenet.com
Jo Gulliver Art editor
luke.oneill@futurenet.com
Julia Sagar Production editor
julia.sagar@futurenet.com
Jessica Bateman Production assistant
jessica.bateman@futurenet.com
Jeremy Ford New media editor
jeremy.ford@futurenet.com

Contributors
Ben Adam, Becca Allen, Borja Bonaque, Nick Carson, Elizabeth Elliott, Sam Hampton-Smith, Vivian Kim, Thiago Maia, Falko Ohlmer, Luke O'Neill (cover) Mark Penfold, Stuart Preece, Ella Taylor, James Wignall, Jing Zhang

Cover and text printer William Gibbons
Paper Graphocote 80gsm text
Cover Precision Special Gloss FSC Certified 250gsm
Typeface Akkurat

Steve Jarratt Group senior editor
Robin Abbott Creative director
Jim Douglas Editorial director

Advertising 0207 042 4122
Nick Weatherall Ad sales director
nick.weatherall@futurenet.com
Ricardo Sidoli Account sales manager
ricardo.sidoli@futurenet.com
Ross Arthurs Senior sales executive
ross.arthurs@futurenet.com
Laura Watson Senior sales executive
laura.watson@futurenet.com
Malcolm Stoodley London sales director
malcolm.stoodley@futurenet.com

Marketing
Emma Kershaw Campaign manager
emma.kershaw@futurenet.com
Zoe Dando Brand manager
zoe.dando@futurenet.com

Print & Production
Vivienne Turner Production co-ordinator
Nola Cokely Ad production manager

Circulation
Joanne Coppin Marketing portfolio manager
joanne.coppin@futurenet.com
Chris Day Direct marketing executive
chris.day@futurenet.com
Colin Hornby Trade marketing manager
Colin.Hornby@futurenet.com
Richard Jefferies International account manager
richard.jefferies@futurenet.com

Licensing
Tim Hudson International licensing director
tim.hudson@futurenet.com

Future Publishing Limited
Fiona Tully Publisher
Matt Pierce Group publisher
Stuart Anderton Group Publishing director
Mark Wood Chief executive

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Chief Executive Stevie Spring
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Group Finance Director John Bowman
Tel +44 (0)207 042 4000 (London)
Tel +44 (0)1225 442 244 (Bath)

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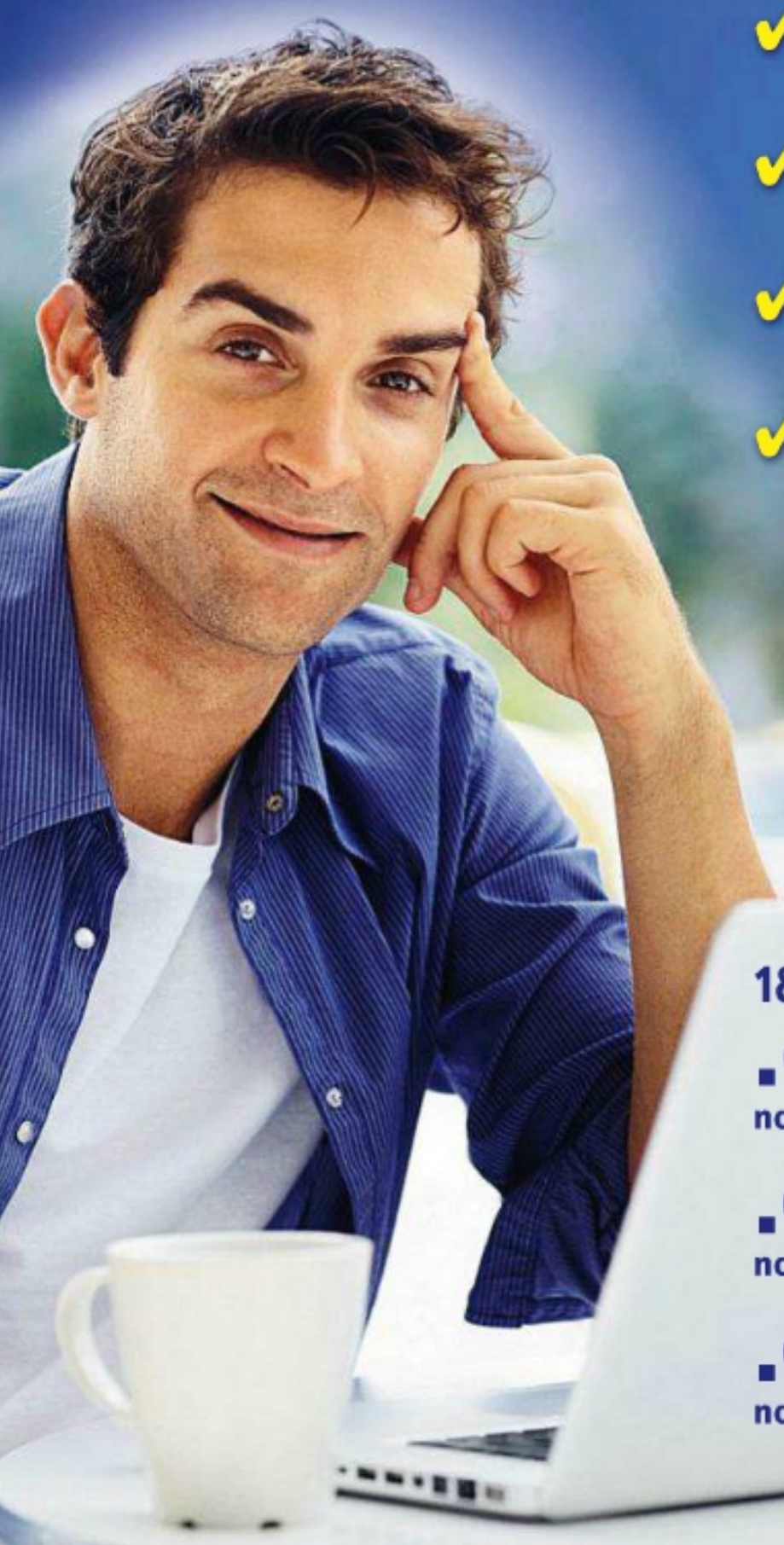

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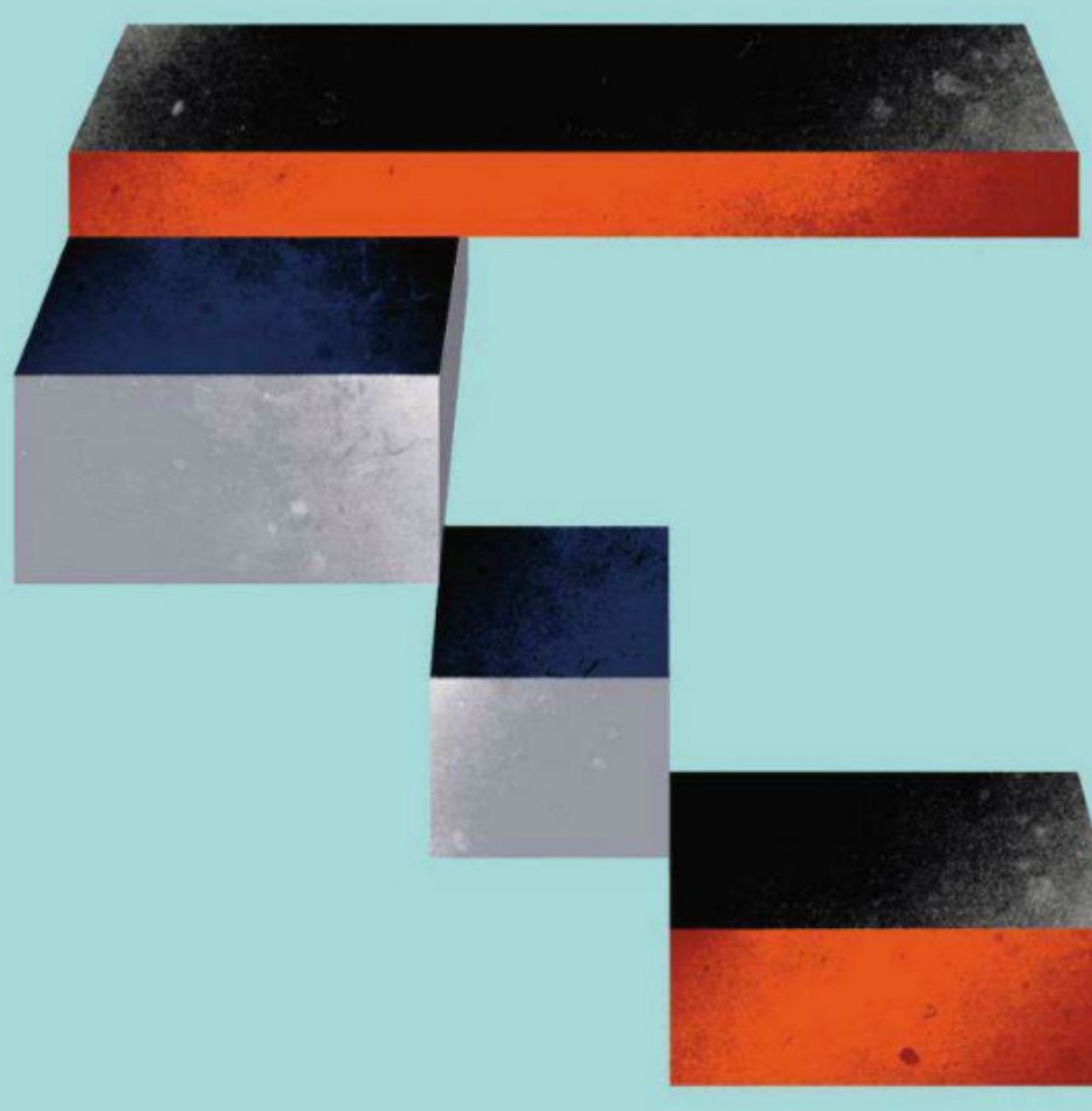
THE PRO'S GUIDE

However you use After Effects in your work, here's how to make the software work harder

THE PRO'S GUIDE TO THE TIMELINE
This page: Speed up your workflow and improve your organisation by mastering the Timeline

The pro's guide to the TIMELINE

Master the different features of the After Effects Timeline and shave hours off your projects – as well as optimising your organisation



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Page 16: Utilise Effects and create stunning motion graphics in barely any time at all

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Page 22: Discover the power of Expressions and how to apply them to your work

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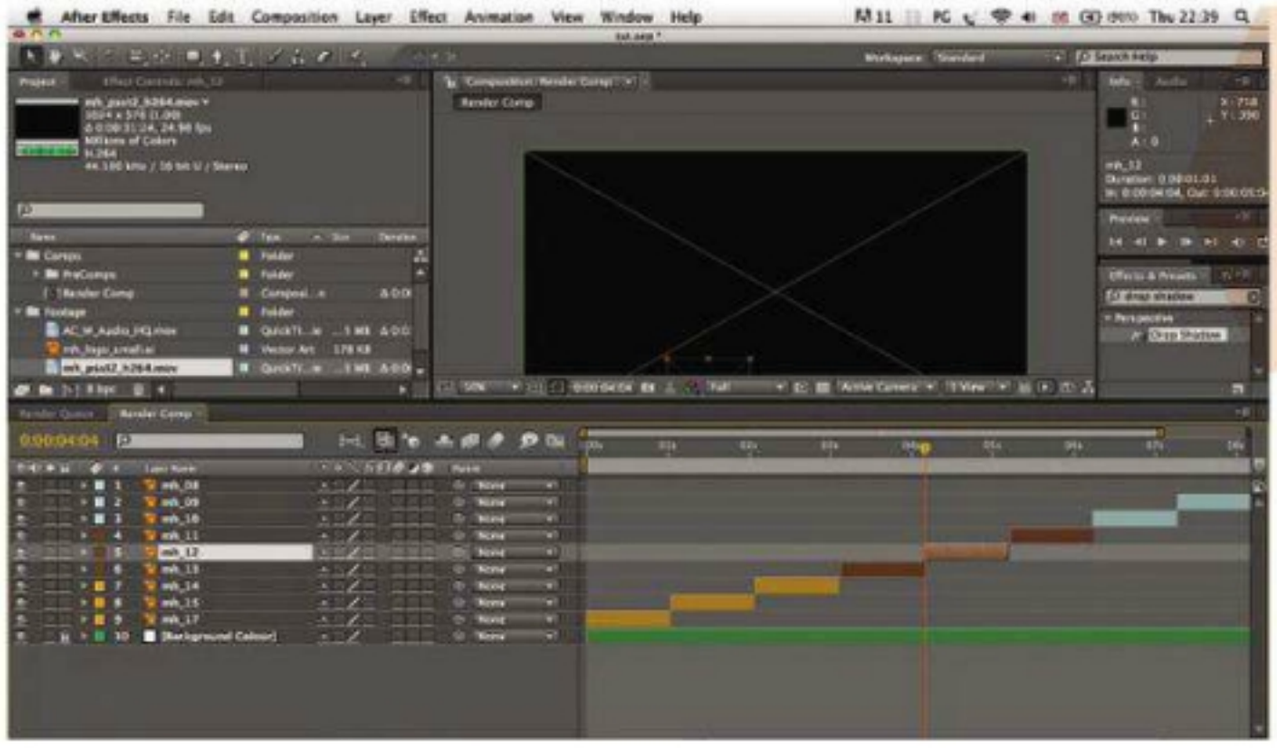
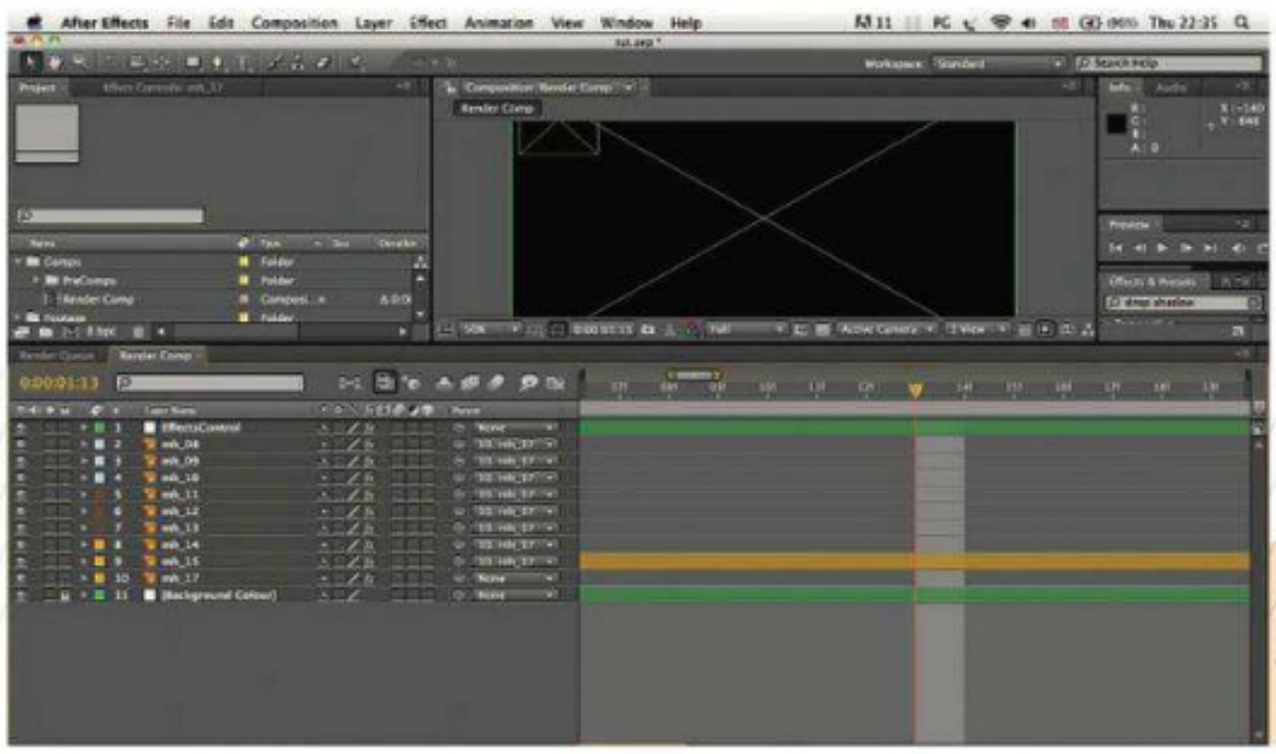


Add sophisticated techniques to your **Colour Balance** arsenal with popular filmic effects such as offsetting cold shadows against warm highlights

Manually recolour an image non-destructively by creating a blank layer above it, setting Blending mode to Colour and painting on this new layer



You can **zoom** in and out of the timeline by clicking the triangles, or by pressing + or -.

We see timelines all around us – from using our iPods to queuing up what you want to watch that evening on your fancy digital telivision. They're not a new concept. Indeed, you could probably consider the Bayeux tapestry a good example of an early timeline from Anglo-Saxon era. I'm sure you can think of earlier examples but let's not digress too much. It's time, on a line.

For many After Effects users the timeline is one of the first ports of call for any project. It acts as a visual representation of all that is happening and what is going to happen. You can think of it as a little bit like a record with each of the keyframe markers akin to grooves etched within the vinyl and the Current Time Indicator (CTI) representative of the needle. Or to use a more up-to-date analogy, it's Guitar Hero.

Let's get to know the After Effects time-line a little and see if we can banish some of the mystery that surrounds it. The first thing you'll probably be presented with is a layer with a little eye icon, layer name, a few strange boxes and a long rectangle of colour. Let's go along the columns to find out what they are about. The first one you'll come to is known as the A/V Features. It's here where you can hide, solo or lock the layer. When you don't want your layer to be rendered or displayed in the View window then click the Eye icon. Similarly, if you want to hide all the other layers temporarily then click the small box below the Circle icon. Last but not least, if you want to lock a layer so no changes can be made to it, click the empty box under the Lock icon.

The next column along is Label. To see exactly what is going on with the layer, you can display the properties by clicking the triangle under the Labels column. It is within here you will find the various Position, Scale, Rotation and Opacity properties, alongside effects that might have been used. Alternatively if you click the layer and press U it will display all the keyframes that it contains. You can also change the layers label group here by

Adding Markers and Comments

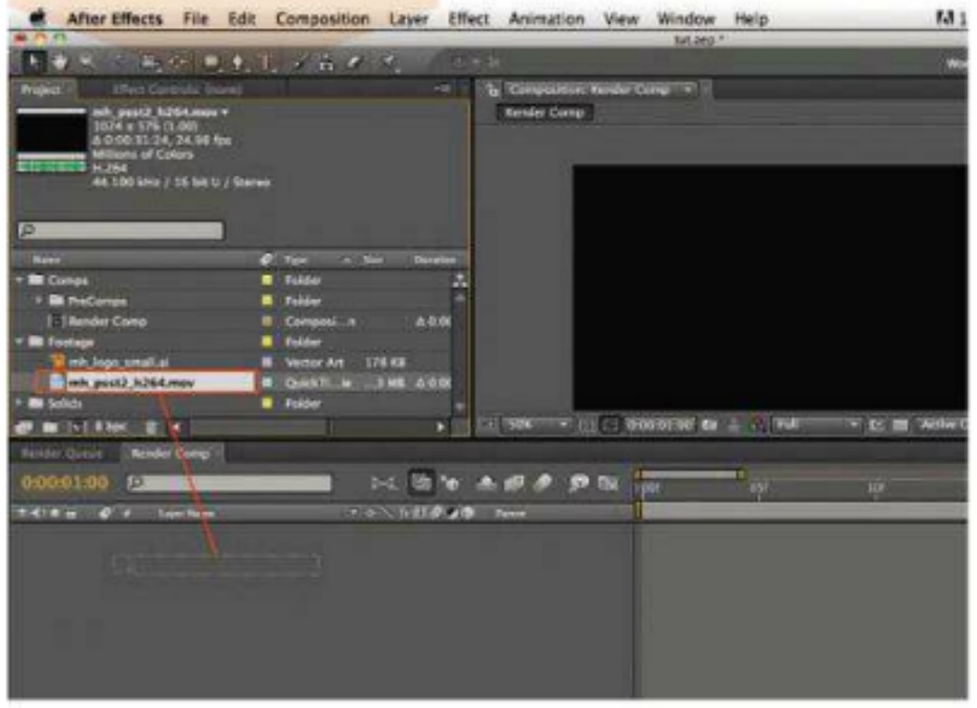
Organise your work and leave notes to colleagues and clients by utilising Markers and Comments

01 Let's start with adding Markers to the actual timeline. Within your composition move the CTI to where you'd like the marker and press Shift+1. A little marker with the number 1 should appear. If you hold down Shift and press any of the numbers from 0–9, then a marker will appear corresponding to the number that you just pressed. Try making a few.

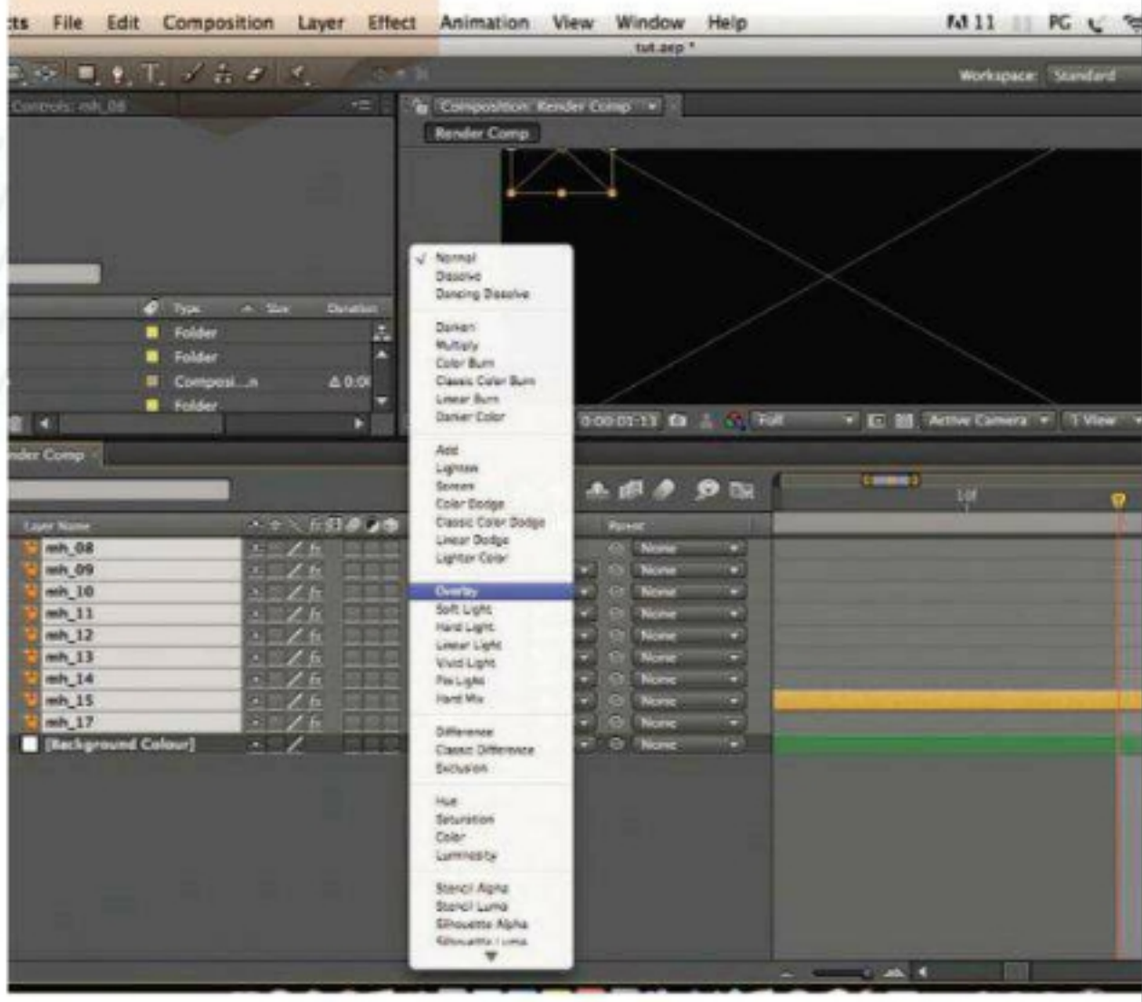
02 Numbered markers aren't always that useful to us so lets change them to something more practical. If you double-click the Composition Marker (to give it the proper name) you'll see a window pop up. Whatever you type in the Comment box will appear next to that marker. I find them useful for making quick notes when editing or where a big even in the timeline takes place.

03 However, you're not just limited making markers on the timeline – you can also add them to individual layers. To do this click your layer (or layers) and press * on the keypad. They work in a similar way – double-click the marker bring up the properties and add text. It's good practice to add comment markers to layers to make it easier to work your way around a project.

You can **import objects** onto the timeline by simply clicking and dragging from the project window



Lots of lovely **layer modes** – they work in an identical fashion to those found in Photoshop



→ clicking the coloured box. This feature is extremely handy when it comes to organisation.

To the right we see the Source/Layer Name column which does what it says on the tin. Moving along we come to its neighbour, Modes. Here we find all kinds of useful features, such as the much coveted Layer Modes. We decide how the layer affects the layer beneath it, we have all the same modes that you find in Photoshop and they work in an identical fashion. Under the same column we have the TrackMatte drop-down menu which allows you to use Alpha Channel / Brightness properties of the above layer as an Alpha Channel to the layer below it.

Now for a biggie – the Switches column. It's under this section that we will find a whole host of tricks, including rasterize, anti-alias, show FX, frame blend, motion blur, enable as an adjustment layer and enable 3D layers. There are countless features to play around with here.

5 top timeline tips

1/ Graph Editor

Buried within the timeline is the all-important Graph Editor. The editor might look a little daunting, but it really comes into play when trying to control the finer details of animation and keyframes. To bring up the Graph Editor select your layer and either press Shift + F3, or click the Graph icon at the top of the timeline panel. Handy for Easing In / Out objects.

2/ Markers / Comments

Here's a really handy feature, especially if you are into organisation and keeping everything easy to follow. You can add Markers to the timeline and to each layer, too. Simply press Alt + * to add to a layer, or Shift + 1/2/3 and so on to add to the timeline. To add a comment double click the marker and type into the box.

3/ Grouping Layers

Utilising the Label Group function can help tame even the rowdiest of comps. To use them select the layers you would like in a group, click the coloured box under the Label column and select a colour to identify them with. After Effects offers 15 different coloured labels to use. If you want to personalise the colours, then you can find them under Preferences> Label Colours.

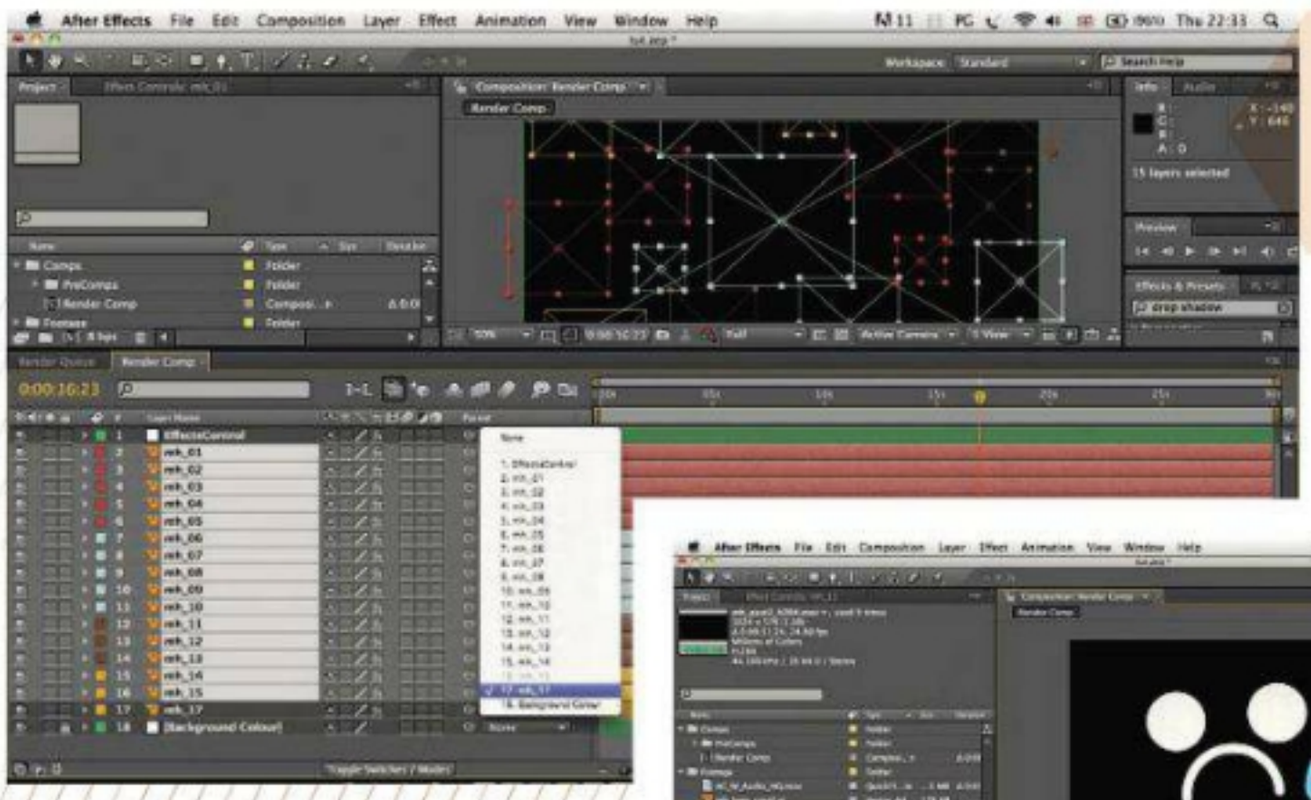
4/ Work Area

Working on a huge composition and notice a glitch in your render? By using the Work Area's Start & End Points there's no need to render more than you have to. To set the start point place the CTI to where you want it to be and press B. Similarly to set the end point move the CTI, but this time press N. Now it will only render your selection.

5/ Flow Diagram

Getting lost within hundreds of layers? The timeline hosts a quick, simple way to make sure you know exactly where you are. When in the timeline panel press Shift to bring up a flow diagram of everything that is within your comp. You can quickly an easily see where what came from, and if it's a PreComp then you can click it and you will be taken to the composition.

You can **import objects** onto the timeline by simply clicking and dragging from the project window



Parenting can be accessed by one of two ways, the drop down menu or the Pick Whip

Changing the **work area** so you only render what you need to is a doddle!

Finally we get to the Parent column, which enables you to link layers together either by using the Pick Whip (the swirly icon) or selecting a layer to attach to from the drop-down menu. When you parent a layer, the layer you have parented is known as the Parent Layer and all the layers parented to it are called Child Layers. It's as if they are all super-glued to the parent layer following the movement, scale and so on.

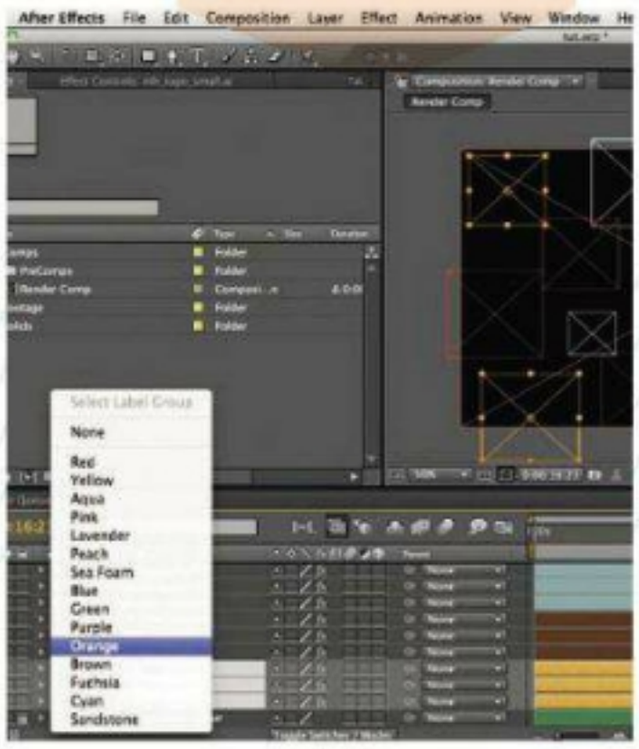
All the different columns and their features can be a lot to take in at once. Don't worry too much about the terminology, the best way of learning any software is always going to be by playing around, clicking bits and bobs to see what happens.

Once the information burst has sunk in a little, let's take a peek at the actual timeline itself. The bar running across the top with the numbers is known as the Time Ruler. Below that we have the Work Area, in which you can set the start and end points by pressing B and N respectively. You can zoom into the timeline by pressing + and -. This will make sliding around those keyframes with more accuracy much easier.

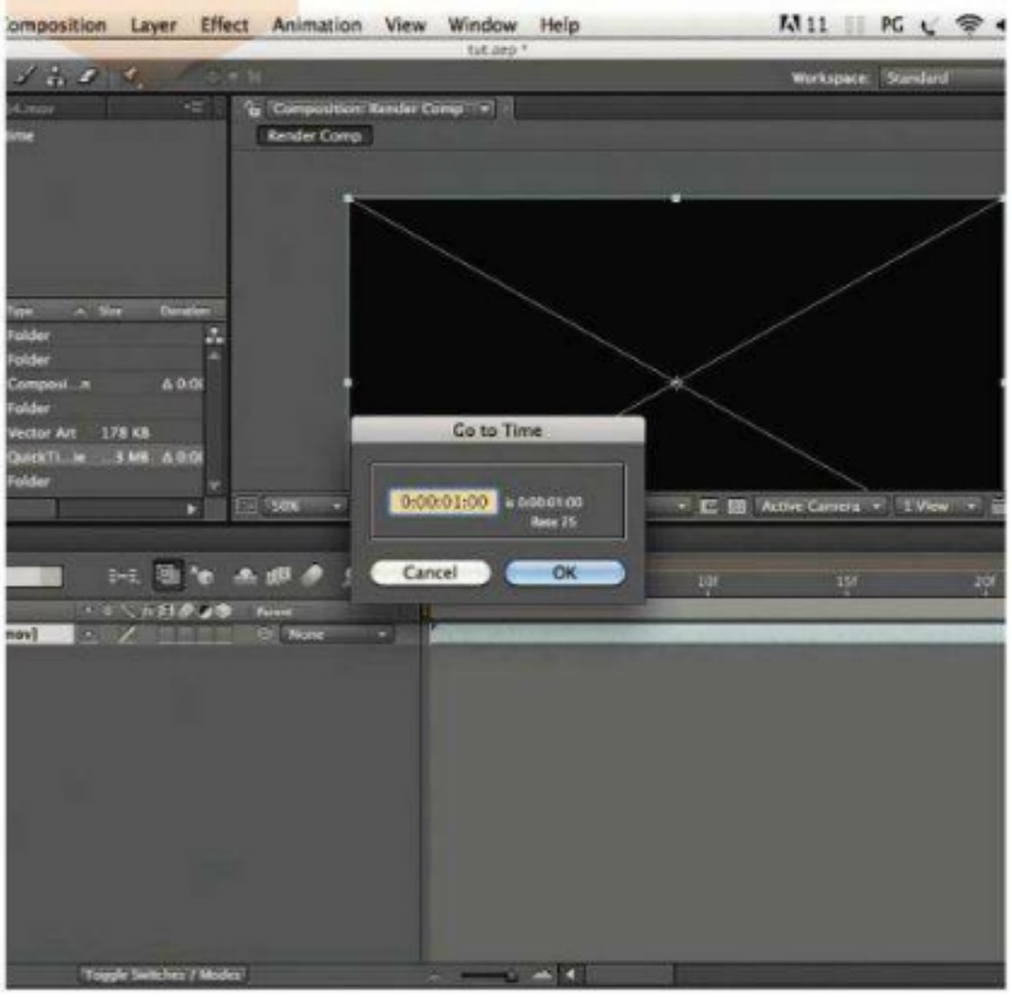
Just below the Time Ruler you'll see a long block of colour which represents each layer's screen time. Where the block starts is when it will first appear and where it ends is where it finishes. You can click and drag the block along the timeline with the mouse. If you click your layer then you can also set the in and out points using Alt+[and Alt+]. This is handy if you plan on putting together a little edit.

Towards the upper left of the timeline above the columns you'll see a cluster of numbers that will change depending on the location of the CTI. It's the Current Time's job to tell you how far along the timeline you are. You can toggle between timecode and frames by simply holding down Ctrl/Cmd and clicking the numbers. If you click the box normally you can go to any point along the timeline with ease.

Using the **coloured Layer Groups** is a great way to keep organised



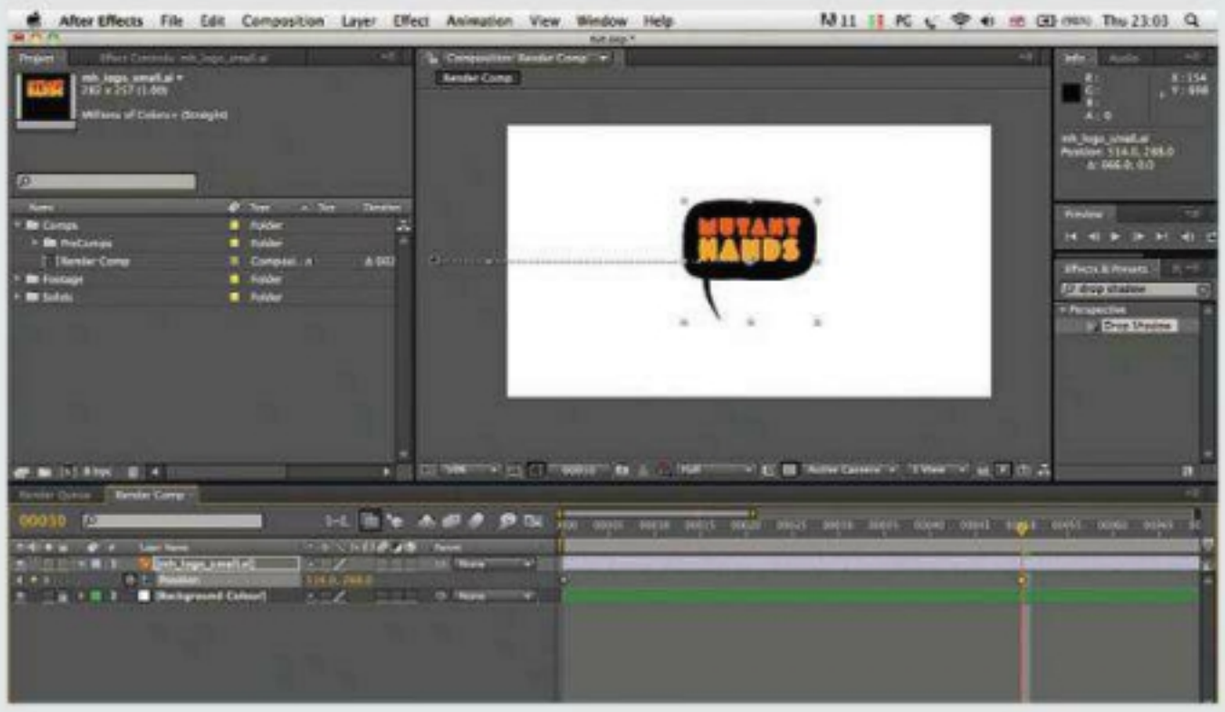
By clicking the time you are able to **jump to any point** in the timeline



As far as an overview is concerned we've really only touched the tip of the iceberg in regards to how essential the timeline is to any After Effects user. It's the foundation, the rock or keystone and, to put it simply, without it what we do wouldn't be possible. Learn to respect it and treat it well and you should hopefully come to see it as a warm adhering old ally. Neglect it and it has the potential to make your life not worth living!

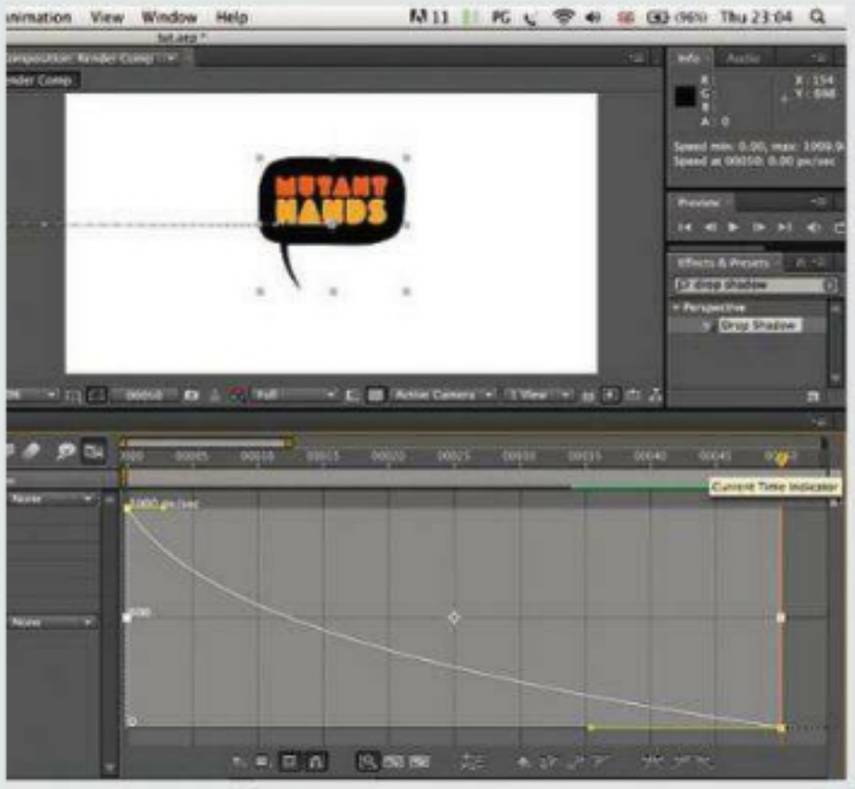
Using Graphs

Transform your animations by mastering the powerful Graph tool and take your work to the next level



01 ___ The graph editor is an extremely powerful animation tool hidden in the timeline. It can turn average animation into something stunning. First, quickly animate the positional movement of a layer. Import your graphic, press P to bring up position and click the stopwatch icon to start animating. Here a graphic sliding from outside the composition into the centre of the scene has been animated.

02 ___ Select the keyframes you've just made and click the Graph Editor icon at the top of the timeline panel. This will bring up the editor – you should have a similar screen to this example. You can see the linear movement represented by a straight line between the two keyframes. When you click one of the keyframes you'll see a yellow Bezier handle appear.



03 ___ Using the Bezier handles you can manipulate the shape of the line. In this example, the nearer to the bottom of the graph, the slower the object moves. If you recreate a similar shape to the one shown your movement will start out fast and come to a gentle stop at the end. The Graph Editor is capable of plotting multiple properties to edit by shift selecting other attributes.

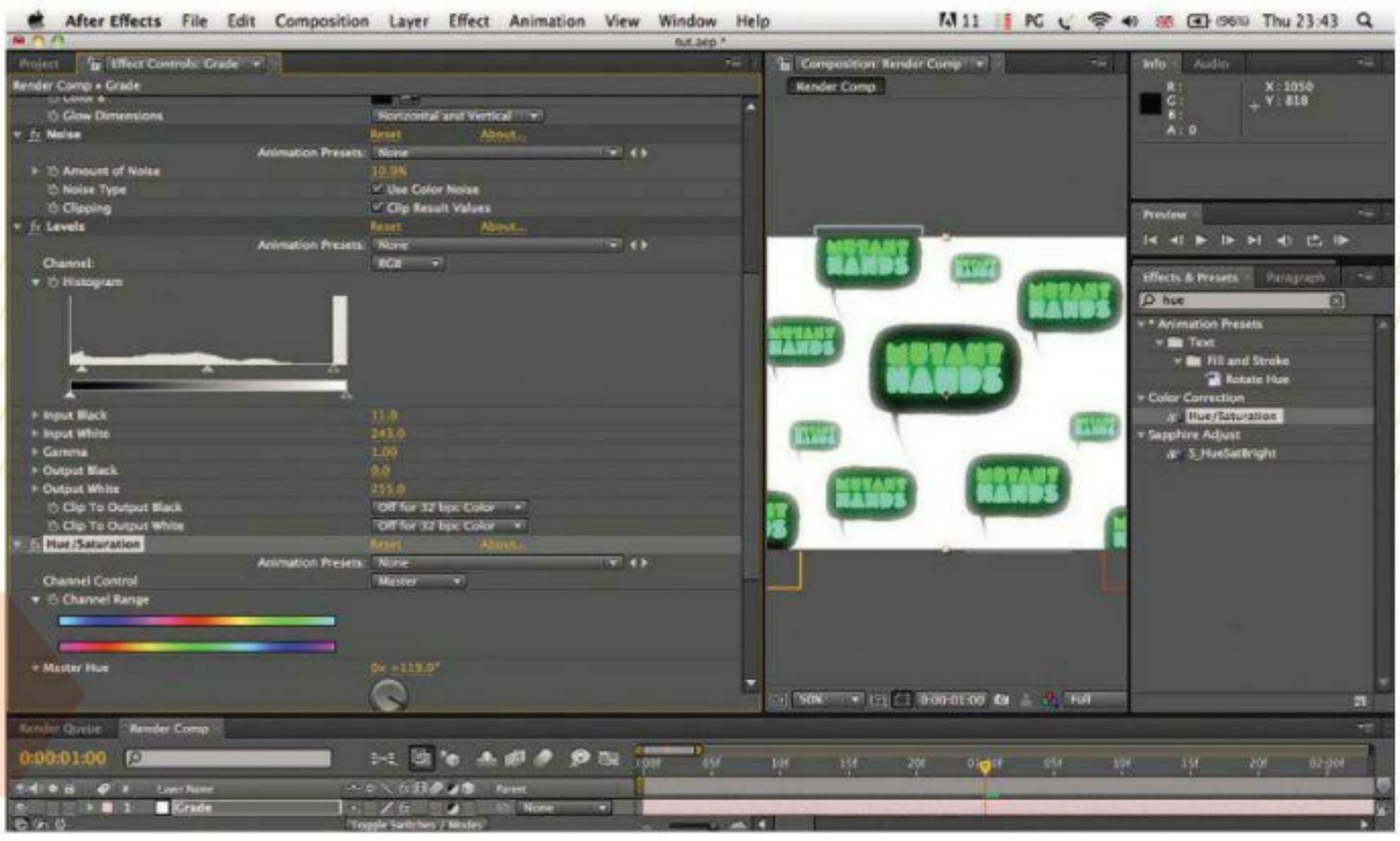
Need to hone your skills?

computer arts

The pro's guide to EFFECTS & PRESETS

Transform your animation and motion projects with the vast array of effects available in After Effects

Navigating around the **Effects menu** is easy. Click and drag an effect onto a layer to use it



The **properties and settings** within different effects stack on top of each other, and are able to be tweaked

After Effects offers a large variety of effects that you can apply to enhance your projects. If the timeline is the foundation of the program, then its effects are the building blocks, letting you add new visual elements, distort sound, manipulate colour and enhance lighting – among many other options. Effects operate non-destructively, so you can change their properties at any time – and knowing what each one does will mean you can build practically anything.

The first element to look at is the handy Effects & Presets panel in After Effects, which enables you to see all that's on offer (Ctrl/Cmd+5). All the effects are neatly filed away under appropriate categories; clicking the triangle next to a category name will reveal the effects contained within it. You might notice the search box at the top of the window – if you know the name (or even just the partial name) of an effect you want to find, then type it in here and the effects that match your criteria will be displayed. It's extremely useful, meaning that you don't have to keep on trawling through multiple menus and sub-menus.

When you'd like to add an effect, simply click and drag it onto the layer you wish to use it on. If dragging effects to layers isn't your thing, you can always do it the old-fashioned way by clicking your layer and selecting the effect from the Effect menu. Once you know your way around the different options and have an idea of what you're after, the quickest way to access an effect is via the Effects & Presets search bar. This method will save you a lot of time and is particularly useful when you're working to a tight deadline for a demanding client.

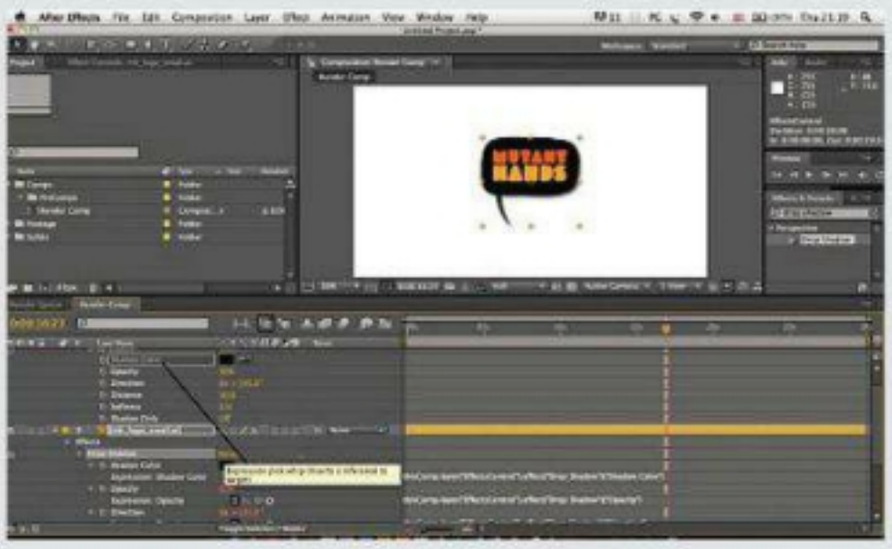
The next window you're likely to encounter is the Effect Controls panel. If you can't find it, just click on Window>Effects Controls, but by default you can see it as a tab next to the Project panel. You can also use F3 to toggle the panel up and down. This panel contains all the controllers for the effects applied to a

Use an effects control layer

You can control instances of an effect on a single layer for increased flexibility and speed

01 Using a single layer to control many instances of the same effect can really help with workflow. First import (Ctrl/Cmd+I) your graphic – or whatever you want to apply the effect to – and then drag it onto your timeline. We've chosen to use a drop shadow here, but you can use this technique with almost any effect.

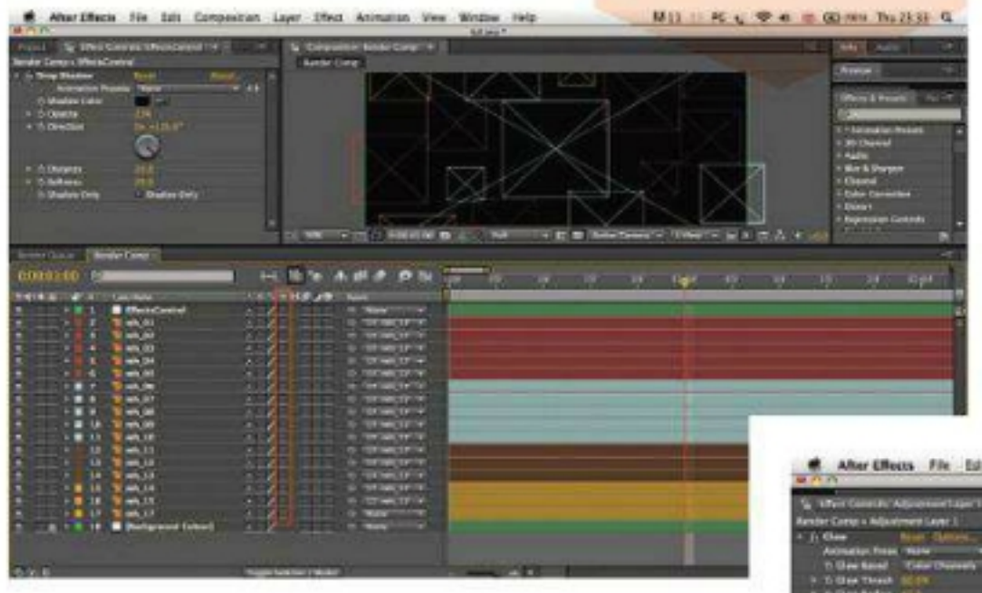
02 Make a new solid layer (Ctrl/Cmd+Y), rename it 'Effects Control' and apply the same effect to it. Either take the layer's opacity down to 0% or click the eye icon to hide the layer for now. Expand all of the effect properties on both layers. In turn, Alt/Opt-click all of the properties on your graphic layer, using the pick whip to link the corresponding properties in the Effects Control layer.



03 Test the links out by tweaking the properties on the Effects Control layer. You should see the properties alter on your graphics layer, too. Once it's all been linked up correctly, you can duplicate your graphics layer as many times as you like and the copies will all be controlled by the Effects Control layer. If you need flexibility and control, this is the way forward.

You can **link two or more effects** using the Expression Control panel

Enable or disable an effect by toggling the FX icon, found left of the effect's name or under the Switches Column



Cant find any of the panels discussed in this guide? Don't worry, you can **find, enable or disable all the panels** via the Window menu

→ selected layer. Here you can play around with the values and see all the different properties that can be tweaked. It's a real treasure trove of information that's just begging to be used and abused for whatever your imagination can conjure up.

The Effects Controls panel also houses another important tool: Effects Stacking. If you have more than one effect applied, you can control the order in which the effects are processed in this panel. For example, you might be working on a layer and decide you'd like to add a Glow effect. Afterwards, you realise that it needs a little bit of colour correction using Levels. Suddenly the lovely, gooey glow you added starts to look blown out. However, if you click-and-drag the effect in the Effects Controls panel, you can switch the order around and all will be well again. You're also able to duplicate any given effects by clicking on them and then hitting Ctrl/Cmd+D – again, this is a particularly handy tip when you're pressed for time.

Pro software skills: After Effects

Five pro tips for using effects

1/ Use adjustment layers

Adjustment layers are a great tool for keeping your effects organised, and offer a little more flexibility. Go to Layer>New Adjustment Layer and apply your effect. Now you can tweak the effect and also adjust all the properties of a normal layer (opacity, position, layer modes and so on). Combined with the use of markers, this is a great way to easily order and adjust your effects.

2/ See all effects at a glance

In a rush and want to see all the effects used on a particular timeline? Make sure you're in the Timeline panel with no layers selected, then press E on your keyboard. Now every layer that's used an effect will reveal itself. This is a huge time-saver, especially if you've just taken over somebody else's project and need to get your head around it without having to ask them lots of questions.

3/ Always apply effects subtly

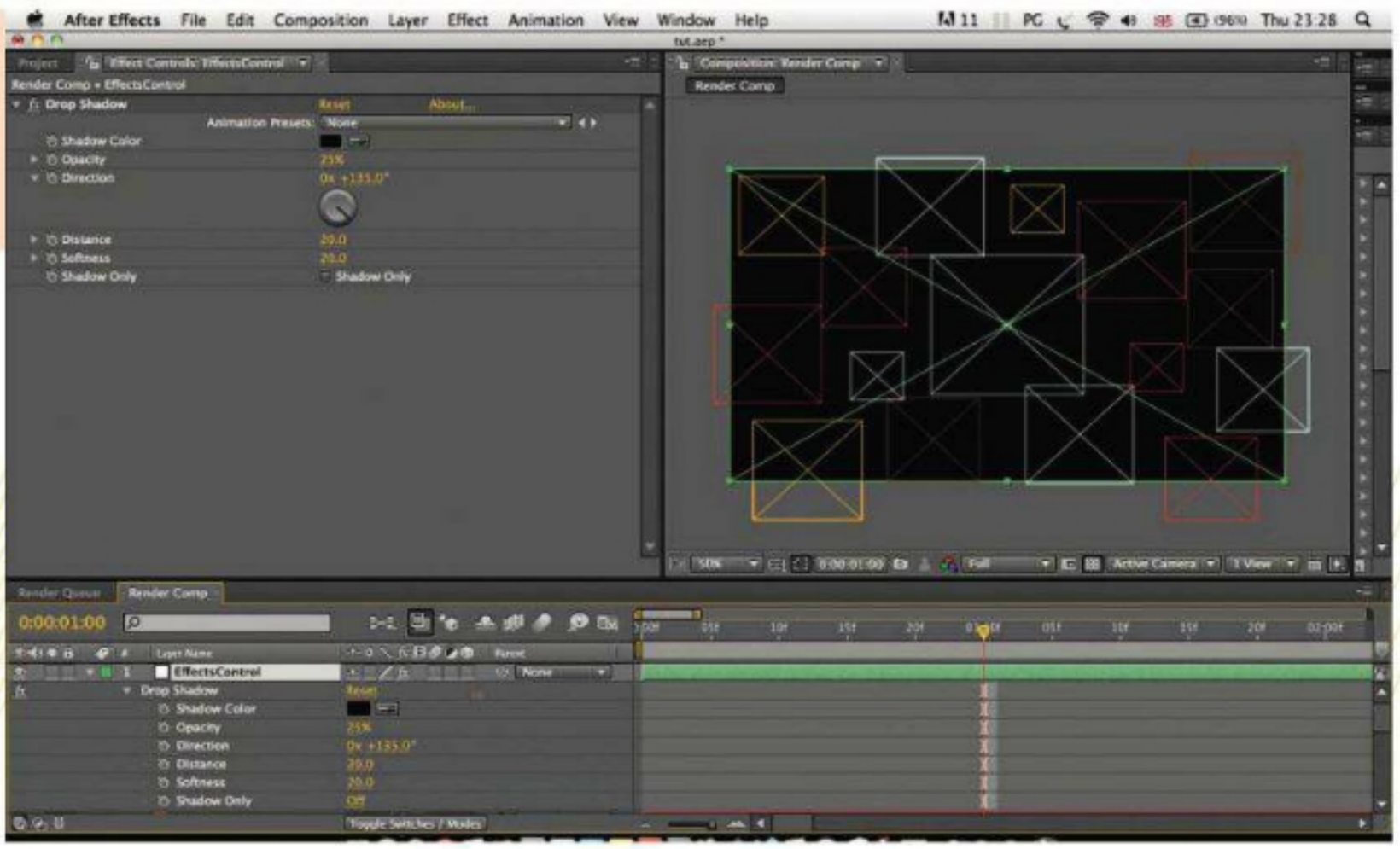
The key to good effects work is subtlety – feel free to use all of After Effects' offerings, but in a way that doesn't make them stick out like a sore thumb. For example, if you're animating static images or clean solid colours, add an adjustment layer with a small amount of noise applied. Drop the layer Opacity right down to around 15%. You'll hardly notice it, but it adds a nice quality to your render.

4/ Search effects

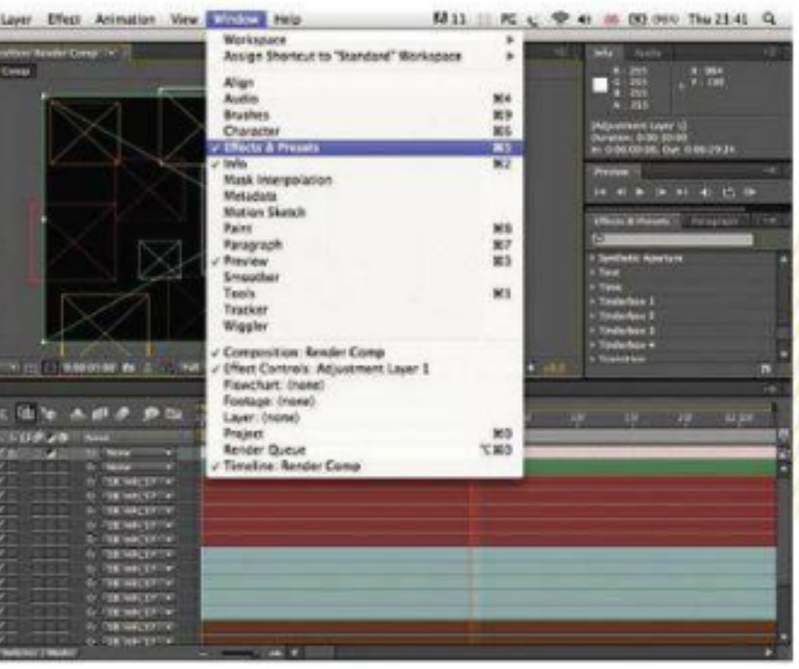
One feature Adobe hasn't included that could probably save a lot of time is the ability to search a project for what effects or plug-ins are being used in it. Luckily the chaps at After Effects Scripts have a solution – check out www.aescripts.com/pt_effectsearch. You can search for plug-ins, where they are, disable and enable or even delete them. Try the demo to see what you think.

5/ Link effects

If you plan on using the same effect lots of times then you can link properties using the pick whip. Apply the effect to the layers you want, and then expand the properties of the effect on both layers. Now go through the properties of one layer's effects, hold Alt/Opt and click and drag the pick whip to the corresponding property on the other layer. Now the properties of both are linked together.



The Effects panel offers an **abundance of properties** ready to be played with – having a look is the best way to learn



As with most Adobe CS products, there are many ways to skin a cat in After Effects. If you don't want to use the Effects Controls panel, you can also get at all the settings by selecting a layer and pressing E. This is a useful keyboard shortcut that will show you all the effects you've used on a layer. From here you can expand and tweak the settings, along with the order in which they're stacked. You might also have noticed a little FX icon under the Switches Column. What this does is enable or disable all the effects on a layer. This a lifesaver if you're working on an effects-heavy project, enabling you to temporarily concentrate on other aspects and cutting down on rendering time. Alternatively, you can disable or enable individual effects by clicking the FX icon to the left of the effect's name.

Now there's one special group of effects that requires its own mention – the Generate cluster of effects. What makes them so special? Well, with these effects you aren't required to have any source material in order for them to work. Indeed, they generate their own material for you to work with, which is what makes them such a useful addition. Like stem cells, these are the true DNA of any effects work: stack them together to create a custom effect that might previously have been unachievable. To use them, create a new solid layer (Ctrl/Cmd+Y) and drag the specific effect onto it. These effects will save you a considerable amount of time. Rather than going into your favourite image-editing or illustration package to create a much needed gradient, you're now able to generate one yourself using Ramp (and no, we're not sure why it wasn't called 'Gradient' either).

The best advice for using the different effects in After Effects is to have fun and experiment. Once you're comfortable with the interface and how the effects work, set yourself a new challenge – perhaps trying to replicate an effect you've seen, just to see if you can. It's fun and you might stumble across

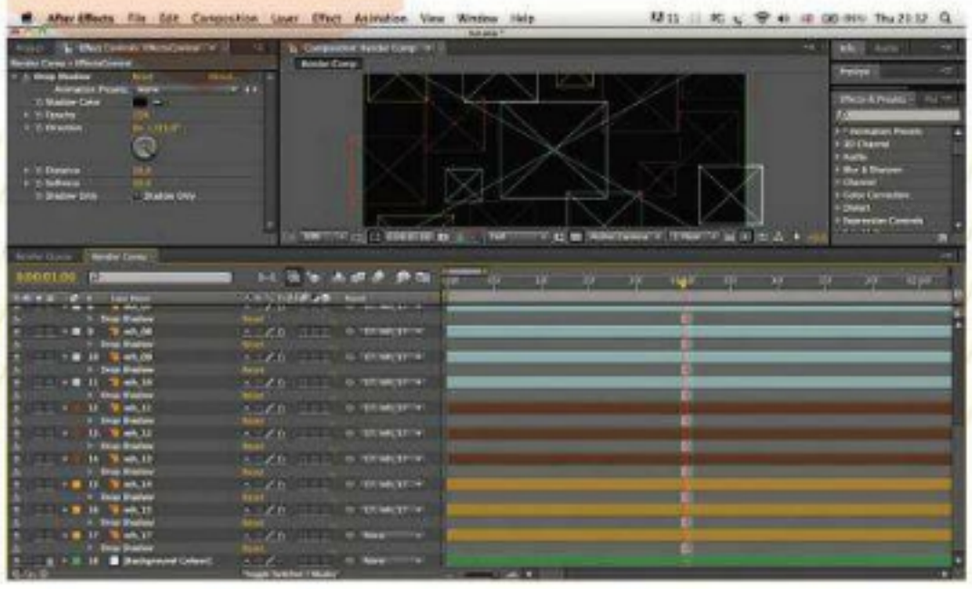
Use adjustment layers with ease

Organise your effects for easy tweaking when inspiration strikes

Ramp is an example of an **excellent Generate effect** – it needs no outside artwork or source material to work

Using the **search box** within the Effects & Presets panel is an easy and fast way to find the effect you're after

Hitting **E on the timeline** enables you to see which effects are being used



01—— Either create a new composition (Ctrl/Cmd+N) and import your work, or open up an existing composition. Next, create a new adjustment layer (Layer> New Adjustment Layer; or Ctrl/Cmd+Alt/Opt+Y). Set it up so that it sits at the top of the layer order (Ctrl/Cmd+Shift+]).

02—— Okay, now let's add an effect to the adjustment layer. Click on the layer and either drag an effect onto it from the Effects & Presets panel or from the Effects menu. Here, we've added a quick, standard Glow effect. Once you've tweaked the Glow settings so that you're happy with them, click on the layer name and hit Return on your keyboard. Now you can rename the layer to something more memorable – in this case, we named it 'Glow'.

03—— And that's how you use adjustment layers. Now you can add as many adjustment layers into your work as you like, each with different functions. In this example, you can see we've stacked quite a few on top of each other. This technique is great for keeping everything where you can see it, plus you can still alter or even animate the adjustment layers later on, if you want.

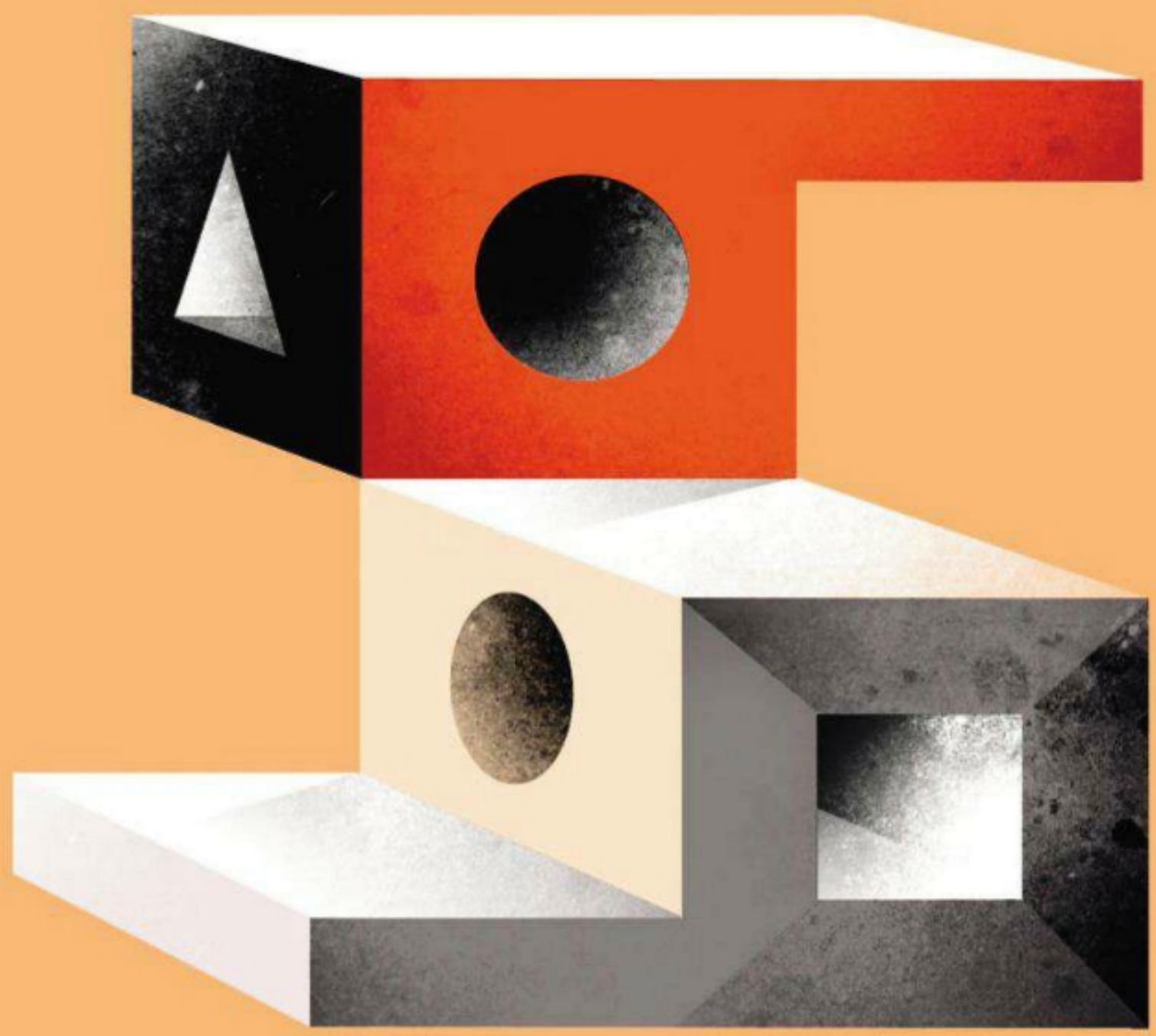
→ something a unexpected result. Happy accidents are good – some designers build a career on them. One word of warning, though: try to avoid default settings where possible, and especially if you plan on cutting the work onto your showreel. Employers can spot them a mile away. The same advice goes for tutorials you've followed: they are only tools to help you get to know how the software works. Apply what you've learnt to your own ideas and you're destined to go far.

Orget inspired for that next big project?

computer arts

The pro's guide to EXPRESSIONS

By fully utilising the expressions options in After Effects you can add all kinds of animation tricks with more accuracy and flexibility



Pro software skills: After Effects

Alt+click on the Clock icon to bring down the **Expression field**

Use a **Slider Control** to manipulate the values. Find it in Effects>Expression Controls

Five pro tips

1/ Expression Controls effect

Expression Controls is made up of six controls including Angle Control, Checkbox Control, Layer Control, Point Control and Slider Control. It's strongly recommended to use the Expressions Control effect instead of a fixed value when writing your script to get a better grip on manipulating multiple layers. Slider Control, for example, returns a value between (1-100). Furthermore, it can be animated.

2/ Frameless

When an expression is applied to a property, it will be executed throughout the whole composition unless you specify otherwise in your expression. Don't bother about dragging the layer from the timeline or adding a keyframe, because it won't affect the animation. Instead, use interpolation methods such as linear() and ease().

3/ seedRandom()

You might have noticed the value that random() generates cannot be carried across frames. But by adding seedRandom() before, you can stop the random value refreshing itself each frame. In the expression seedRandom(9999, true); a = random(); The value of 'a' won't change for 9999 seconds once set.

4/ if (statement1){ statement2 }else{ statement3 }

The if...else condition statement is really useful if you want an object to be animated under specific circumstances, which can be as basic as waiting until a set period has passed before starting an animation. For example, enter `if ( time >= 5 ){ value+[10,0] } else{ value }` under Position. After five seconds has elapsed, the object begins to move to the right at the rate of 10 pixels per frame.

5/ loopOut(type= "cycle", num Keyframes=0)

This single line of expression is extremely useful when you want to loop a segment of animation in the background. numKeyframes=0 is the default setting, which means all the keyframes will loop. Apart from 'cycle', the other common type is 'pingpong', for if you want it to loop back and forth. The best way to use this is to pre-comp your animation, and then enable TimeRemap and apply it under the TimeRemap property.

The expressions scripting system in After Effects is hugely powerful. Thinking about creating an animation without using a single keyframe? Or manipulating hundreds of layers by just flipping a slider? If these aren't cool enough for you, how about inverse kinematics? These can be all done by using expressions efficiently and accurately.

When we decide to choose an expression over classic keyframing in an animation that involves physical simulation, it doesn't mean it will be much easier to achieve with expressions. In fact, sometimes it takes quite a long time to set up. But it's the accuracy that we're after. Even if you've managed to manually animate a tennis ball bouncing on the floor perfectly, sometimes clients would like to see it bounce for a little bit longer, but lower. It can be done in no time using expressions – just by changing some values – so it's the flexibility that's the main advantage.

However, many people have never used expressions. Resources and tutorials on the internet are plentiful, but before you're able to write your own script, it's important to understand the expressions that other people have written, and never be put off by the Expression Error message.

Adding an expression to your animation is simple, and changing a layer's position is among the simplest tasks you can do. Expand the layer, then find the property you want to add an expression to, for example Transform>Position. Alt/Opt+click on the stopwatch next to the Position property. The Expression field appears to the right, and the property values change to red while the equal mark icon turns on, which means the expression is valid and effective. If you want to disable an expression while keeping the script, simply click on the equal mark.

Entering a value for the expression couldn't be easier. First, let's enter a set Position value. Because Position relies on both X and Y co-ordinates, you actually need to enter two values, paired together with square brackets. So to set a value of 50 on both axes, you would enter [50, 50]. If you want to animate the →

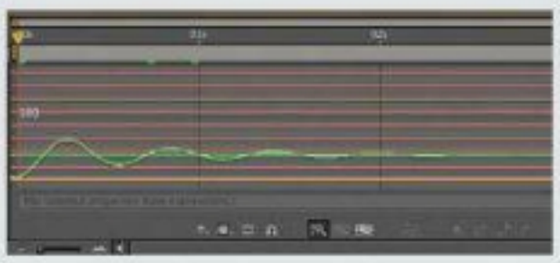
Randomly animate bouncing letters

To avoid conflicts with After Effects attributes, give your variables distinctive names...

01 For any object that needs a realistic bouncing motion, this is the prototype of the expression under the Position property: amp*Math.cos (veloc*time)/Math.exp(decay*time) It generates a variable that changes over the time and decays at a certain point. amp, veloc and decay, are defined by users. Use the pick whip and the slider control to assign values.

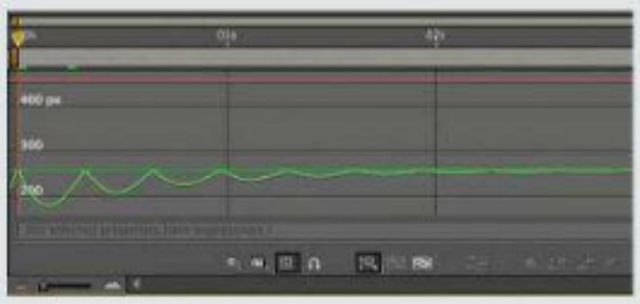
```
veloc = comp("master").layer("Be obscure").effect("Velocity")("Slider");
amp = comp("master").layer("Be obscure").effect("Amp")("Slider")*1.5;
decay =  comp("master").layer("Be obscure").effect("Position_Decay")("Slider")/10;
y = amp*Math.cos(veloc*time)/Math.exp(decay*time);
value + [0,-y]
```

Drag your pick whip to the slider to pick up the name (in underlined text) instead of just typing it out, for more accuracy.



02 If you copy the expression in step 01 and use it for other objects, their movement would look exactly the same. So vary the expression by adding some randomness to velocity and amplitude. Note that here we have used seedRandom(); .

```
seedRandom(9999,true);
veloc = random(comp("master").
layer("Be obscure").effect("Velocity_
minVal")("Slider"),100)*comp("master").
layer("Be obscure").effect("Velocity")
("Slider")/100;
amp = random()*comp("master").
layer("Be obscure").effect("Amp")
("Slider")*1.5;
decay =  comp("master").layer("Be
obscure").effect("Position_Decay")
("Slider")/10;
y = amp*Math.cos(veloc*time)/Math.
exp(decay*time);
value + [0,-y]
```

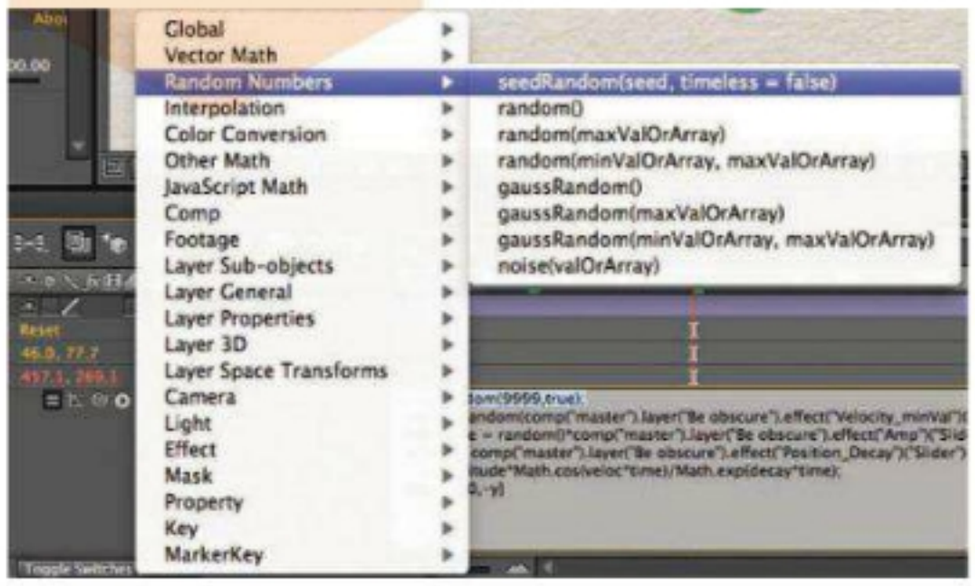


03 Finally, bring it to the floor. Note that we've declared a new z variable and have brought in the Math.abs() method to make the sine wave positive, so it allows the bouncing decays to occur above the floor instead of in the middle.

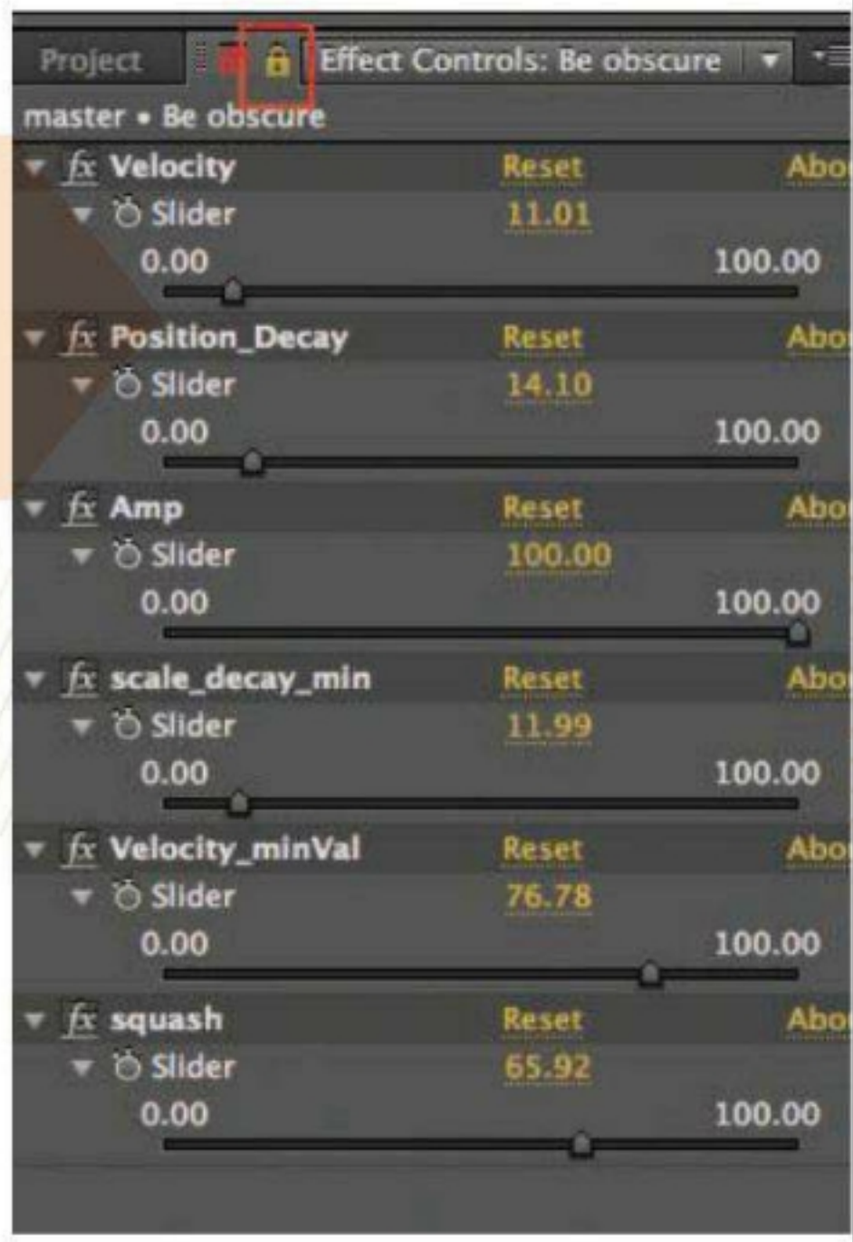
```
seedRandom(9999,true);
veloc = random(comp("master").layer("Be
obscure").effect("Velocity_minVal")
("Slider"),100)*comp("master").layer("Be
obscure").effect("Velocity")("Slider")/100;
amp = random()*comp("master").layer("Be
obscure").effect("Amp")("Slider")*1.5;
decay = comp("master").layer("Be obscure").
effect("Position_Decay")("Slider")/10;
z = Math.abs(Math.sin(veloc*time));
y = amp*z/Math.exp(decay*time);
value + [0,-y]
```

Now we're ready to copy and paste the expression to the other layers. If you want to make changes, simply drag the slider accordingly.

By clicking the little triangle icon next to the pick whip icon, you can find **the basic expression methods** from the list



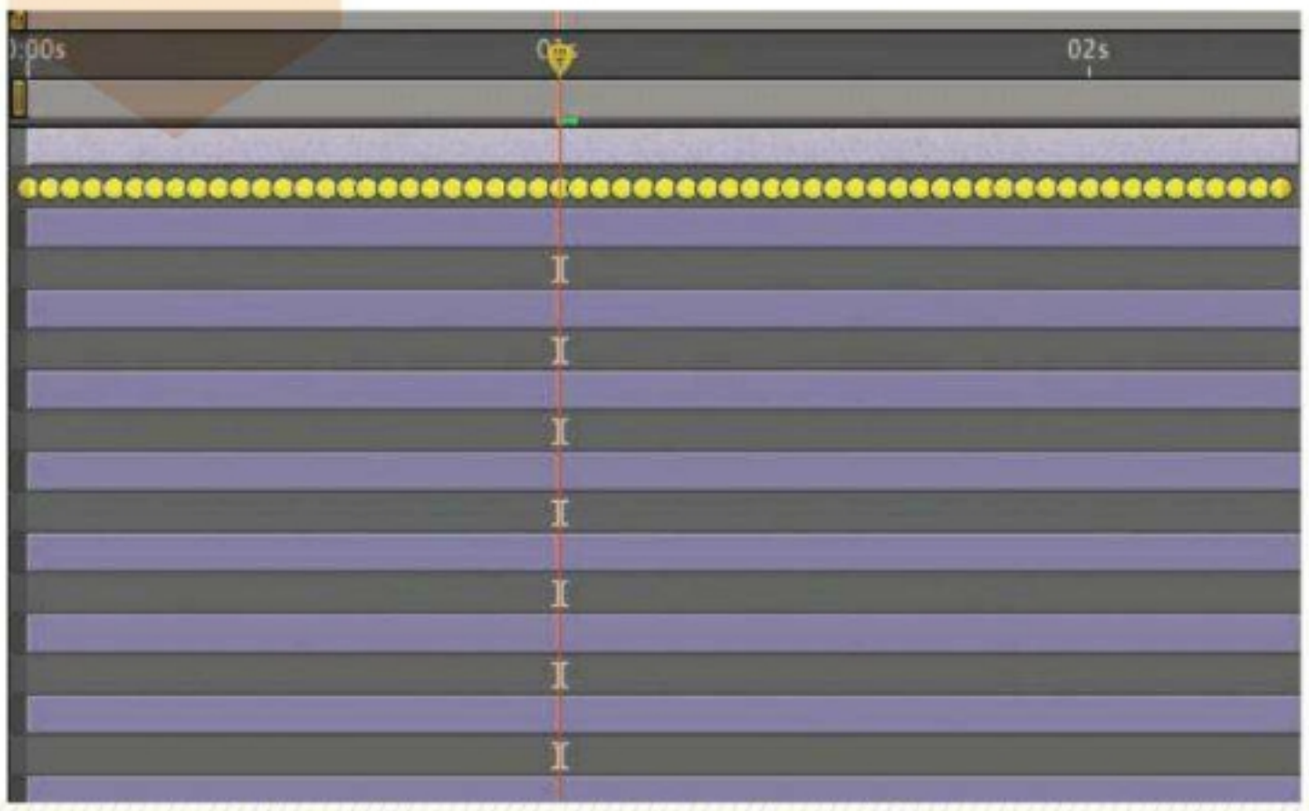
With the layer of all the Expression Controls selected, click on the lock sign to **lock the Expression Panel**. Use pick whip to pick up the values



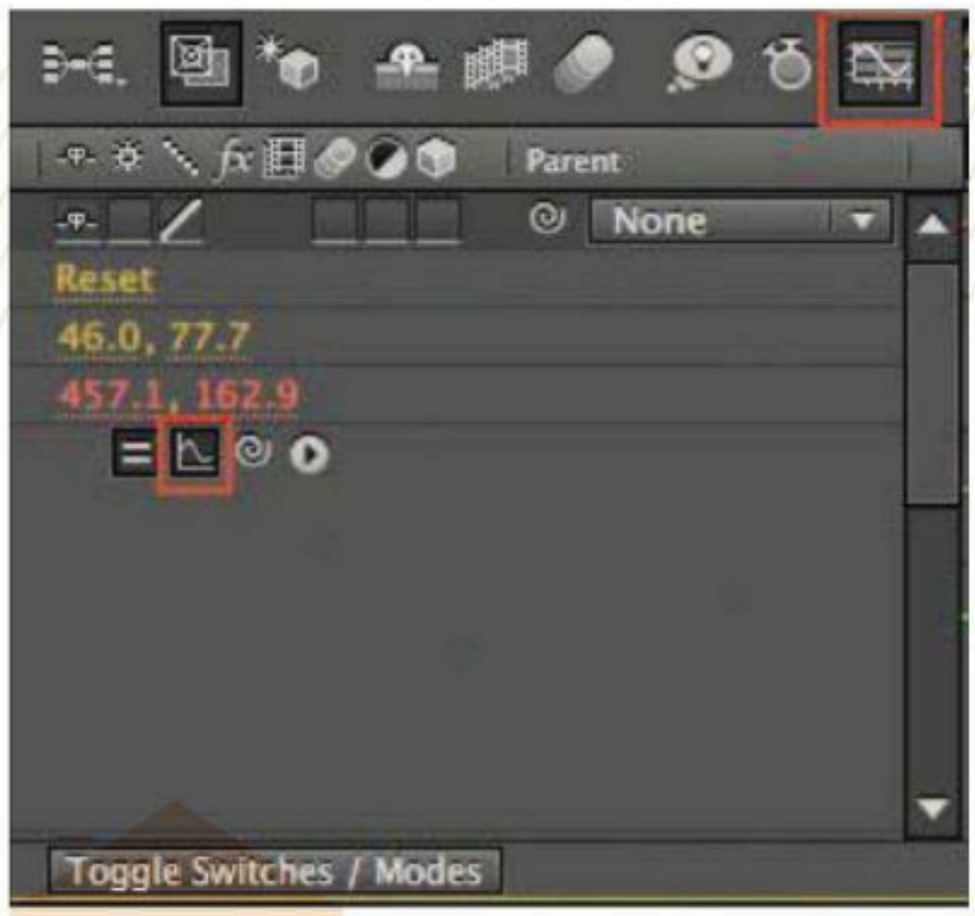
→ layer, try entering value + [50*time, 50*time]. In this expression, 'value' returns the current value before any further changes have been applied and 'time' returns a variable of which second the indicator lapses on the timeline. So both the X and Y co-ordinates will change linearly, which results in the object moving towards the bottom-right.

Interpolation methods will make writing your expressions a lot easier. For example, they enable you to control changes in momentum. You can specify at what point and for how long your expression will be effective.

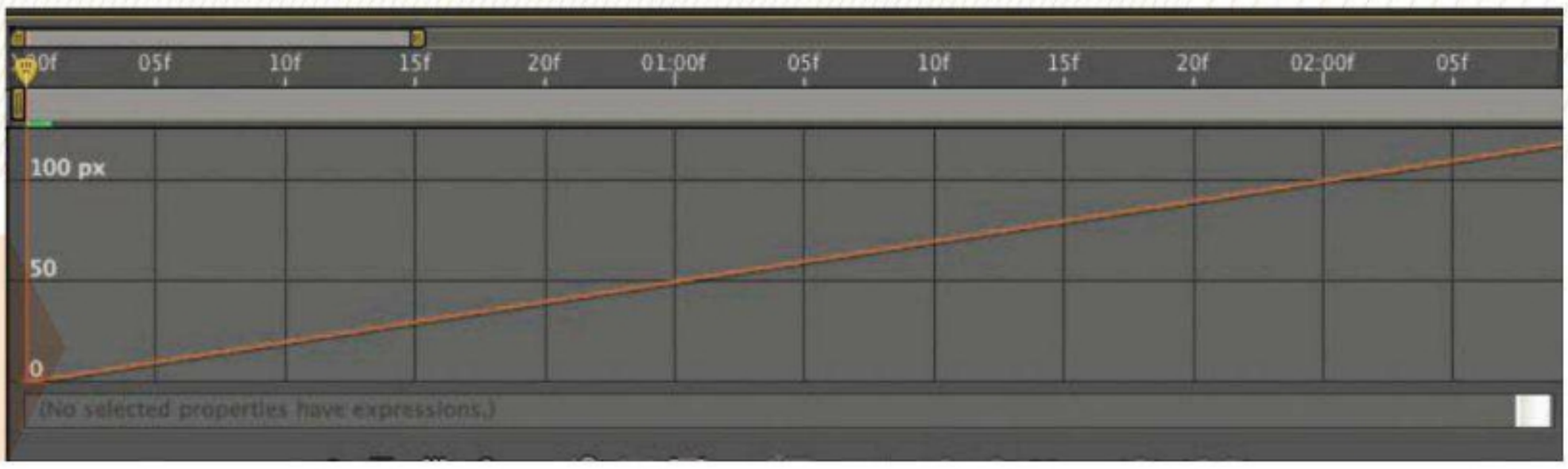
Expression interpolation methods are similar to keyframe interpolation. These are the most commonly used attributes: linear(t, value1, value2) interpolates linearly from value1 to value2; linear(t, tMin, tMax, value1, value2) interpolates linearly from value1 to value2 between tMin (seconds) and tMax (seconds); ease(t, value1, value2) makes the interpolation smoothly ease in and out from value 1 to value 2; ease(t, tMin,



The expression of the top layer's Position has been **converted to Keyframes**



Click on this icon to show **Post Expression graph**, when Graph Editor is also turned on



The Post Expression graph of value + [50*time, 50*time], at position property

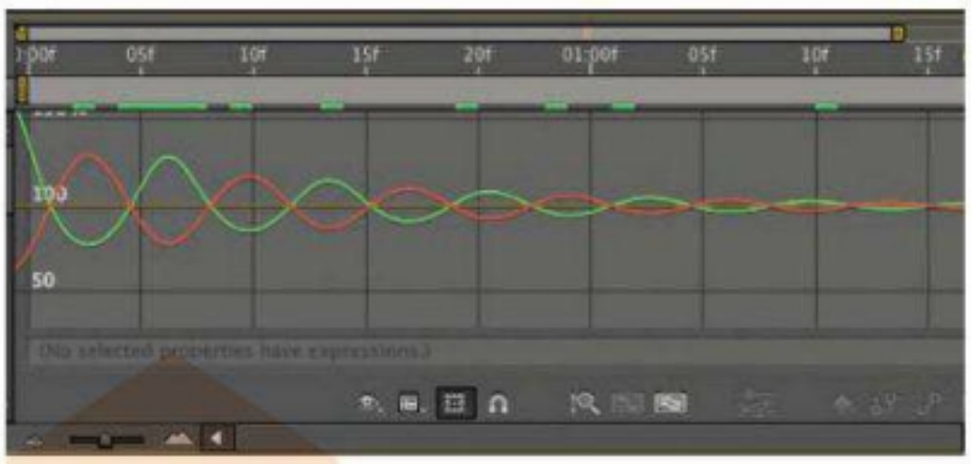
tMax, value1, value2) makes the interpolation ease smoothly from value1 to value2 between tMin and tMax.

The linear() method consistently divides the value by the time, so the object has the same speed throughout the whole sequence; while the ease() method smooths out the entrance and the exit. easeIn() and easeOut() perform similar functions, on the entrance or exit respectively.

Sine and cosine waves might remind you of the pain of sitting at the back of a maths class, but unfortunately they need to be brought back in if you need to animate an object with a physical nature – it might be bouncing, jiggling or have an elasticity, for example. The value generated by Math.cos(time) starts off from 1 at 0 velocity, while it starts from 0 value by Math.sin(time) at its top velocity. A similar example in reality is the motion of a pendulum, which starts off with 0 degrees and after reaching the top speed at 90 degrees, it then finishes off with 180 degrees, then keeps on looping back and forth.

So if we create a scene with a dropping tennis ball, we would chose Math.cos(time). But in reality, any bouncing object will decline and finally die down at a point. Therefore we introduce the exponential curve Math.exp(time). This function enables the value to grow exponentially on the timeline. However, if we give the complete opposite parametr – say, Math.exp(-time) – it will be a rapid decay. So, the basic expression of a bouncing ball's Y coordinate should be Math.cos(time)*Math.exp(-time) or Math.cos(time)/Math.exp(time). Check out Dan Ebberts's website (www.motionscript.com) for much more about motion-based expressions in After Effects.

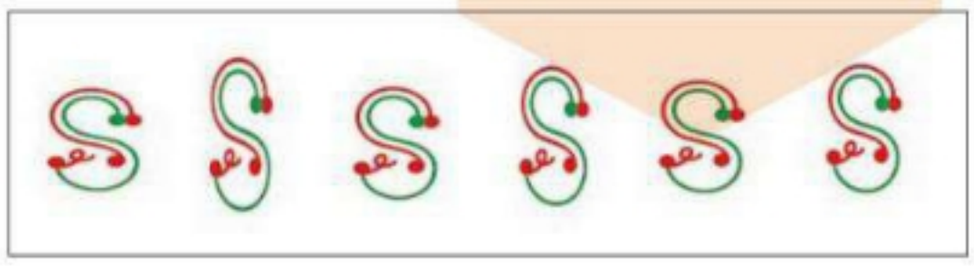
Expressions can provide many calculations for your computer to do, which can drag down the render speed. To save yourself render time, you can sometimes convert expressions to keyframes – or, in some situations where you want to manually adjust the value at a certain point, the Keyframe Assistant function comes in handy. Select the property on which the



The **Post Expression graph** of Math.cos(time)/Math.exp(time), at position property

Use the pick whip to **pick up the variable** instead of writing it, for more precision in grammar

You can add a **scale deviation expression**, making the bouncing animation looks more realistic



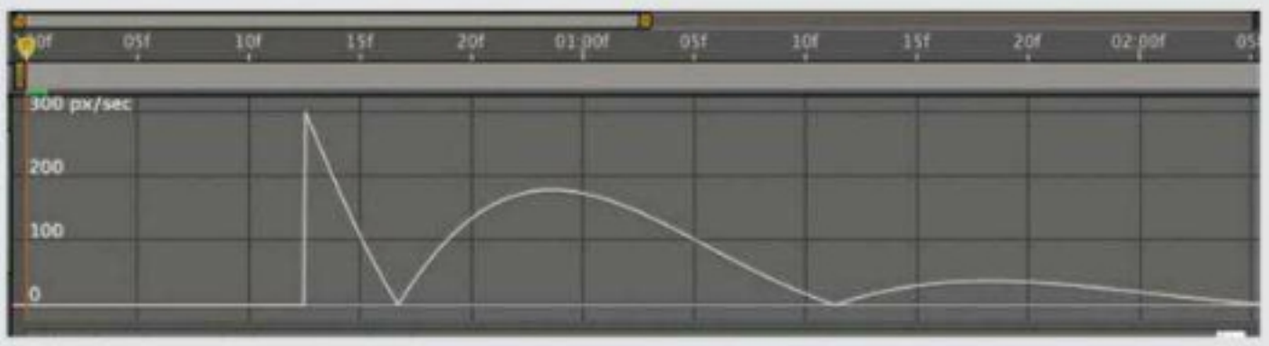
→ expression is applied on, then choose Animation>Keyframe Assistant>Convert Expression To Keyframes. Once converted, it can't be reversed.

There are no fixed rules on when and where to use expressions. Some people find them completely comfortable to use, while other people struggle to get them to work. But with some study and practice you can really make expressions work for you, saving you time and delivering more creative results. Try and get familiar with some basic After Effects expression attributes such as time, value, inPoint, outPoint, width, height, duration, frameDuration, bgColor, velocity and speed – you'll see the benefits in your workflow almost immediately.

Pro software skills: After Effects

Animate bouncing letters in sequence

You've animated your letters, now make them bounce in order



01 The first layer's expression is the same as that used on page 24:

```
velo = comp("master").layer("Clearly").effect("velocity")("Slider")/10;
amp = comp("master").layer("Clearly").effect("amp")("Slider")*100;
decay = comp("master").layer("Clearly").effect("decay")("Slider")/10;
x = amp*Math.cos(velo*time)/Math.exp(decay*time);
value + [0,-x]
```

However, all the other layers have a different time delay – so instead of having value + [x,y] as the final command, use the 'if/else' condition. The expression below delays the bouncing animation by 0.5 seconds:

```
x = 300*Math.cos(4*time)/Math.exp(2*time);
if (time>=.5){ value+[-x,0] }else{ value }
```

02 Here, we have assigned a new variable, dur (for duration). In the following expression, dur has been given the value of the layer's actual animated duration. To make the slider work more accuratly, it's been divided by 25 (the fps of the current comp), so the slider will return the total frame numbers instead of seconds.

```
dur = time - comp("master").
layer("Clearly").effect("gap duration")
("Slider")/25;
//slider 'gap duration' controls the
waiting time of the layer
x = amp*Math.cos(velo*dur)/Math.
exp(decay*dur);
if ( dur >=0 ){ value+[-x,0] }else{ value }
```

In this example, the slider points at 10, telling the animation to start at frame 10.

03 To animate all the layers in sequence we have added 'index', making the final expression as follows:

```
velo = comp("master").layer("Clearly").
effect("velocity")("Slider")/10;
amp = comp("master").layer("Clearly").
effect("amp")("Slider")*100;
decay = comp("master").layer("Clearly").
effect("decay")("Slider")/10;
dur = time - (index-1)*comp("master").
layer("Clearly").effect("gap duration")
("Slider")/25;
x = amp*Math.cos(velo*dur)/Math.
exp(decay*dur);
if ( dur >=0 ){ value+[-x,0] }else{ value }
//[-x,0] can be changed in to [x,0] or even
[0, x]
```

Apply the expression under Position respectively from the second layer to the last.

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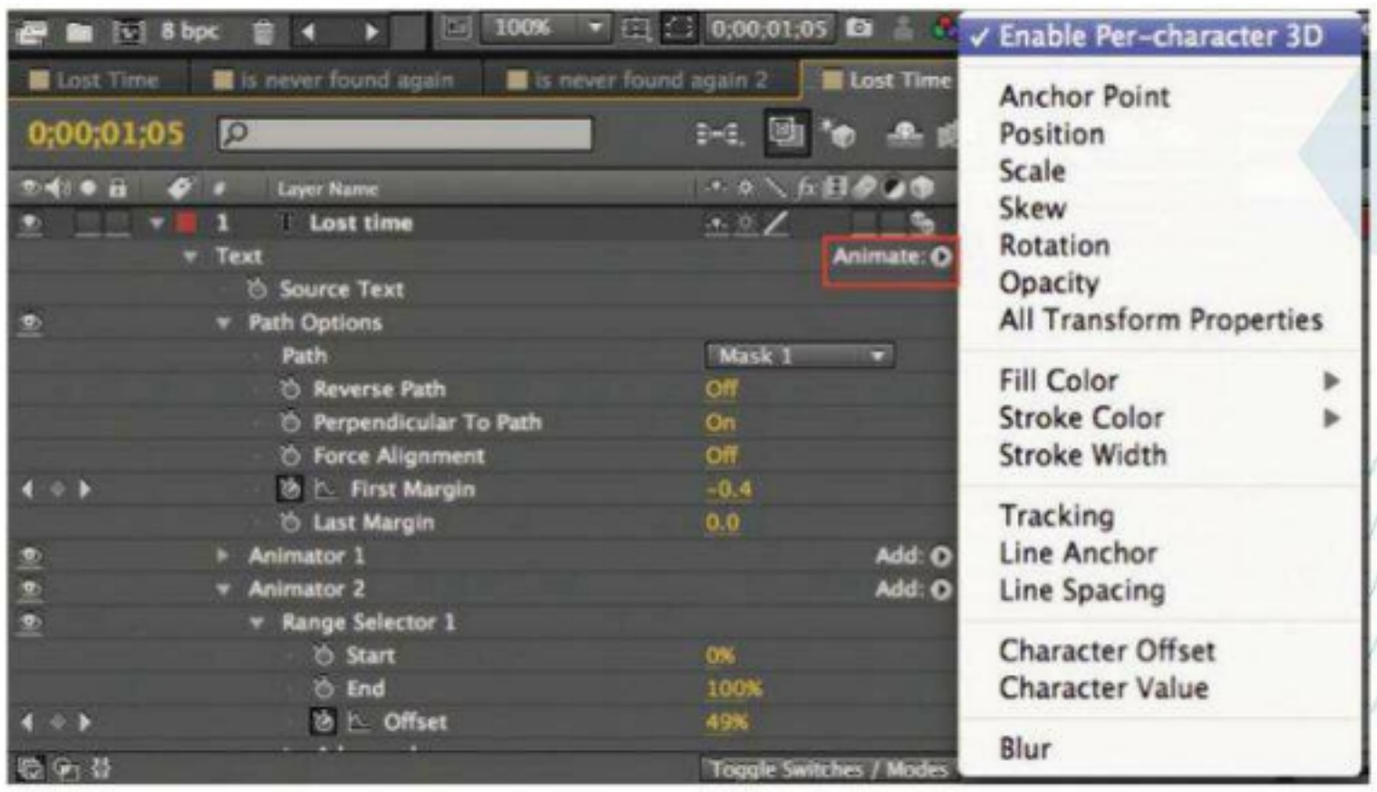
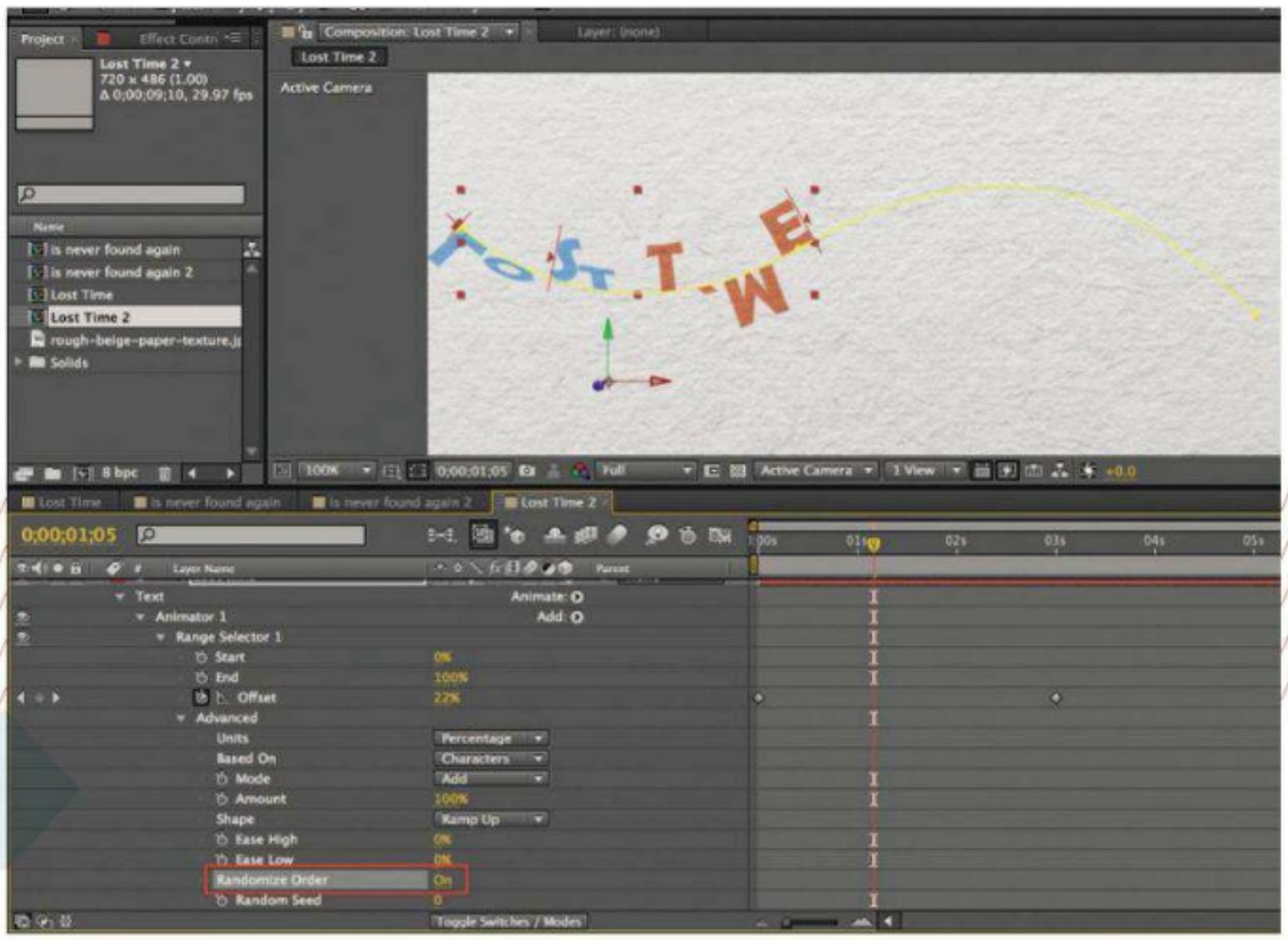
The pro's guide to TITLE SEQUENCES

Create a striking and visually interesting title sequence in just a short amount of time using After Effects' powerful text animation functions

Pro software skills: After Effects



You can enable **Per-character 3D** by going into Text Animation



To animate letters randomly, ensure **Randomize Order** is set to On

Creating a slick, attention-grabbing title sequence in After Effects might seem like a daunting task. However, with a little knowledge of the vast range of functionality on offer, it's easy to construct a compelling animation in a relatively short amount of time. Over the following pages, we'll walk you through how to make a stunning text-intensive title animation, covering the most important functions, techniques and applications in After Effects that you need to know about.

We're going to work with text for our title animation, so the first thing you need to do is make sure your workspace is switched to Text (Window>Workspace>Text). Each workspace is designed for maximum efficiency when carrying out the corresponding type of task: Text brings the Character and Paragraph palettes to the fore.

The Character palette contains basic typography options, enabling you to choose a font family and its style, and adjust font size, leading, tracking, text stroke and text fill colour, as well as stroke size. If you would like some inspiration for which font to use, click in the Font Family drop-down menu and press the Up and Down arrows on your keyboard until you find a font that's suitable. The user interface here is very similar to that of other Adobe software. Underline and Strikethrough aren't available, but it's simple to animate a straight line over text to get a similar effect.

After Effects CS5.5 comes packed with more than 250 fully editable text animation presets, so if you don't have time to custom-make your own from scratch, these offer a quick solution. They've been created in an NTSC DV 720x480 composition and you can browse and apply them using the Effects & Presets panel in After Effects (look under Animation Presets), or in Adobe Bridge (Animation>Browse Presets) for a fast, straightforward result. Essentially, they're ready-made variations of Text Animator properties.

However, you might find the presets just aren't quite right for the look you're after. If that's the case, then to adjust the animation is simple: click on the layer, and press U once to see only animated properties, or U twice to see all the properties the preset designer has changed.

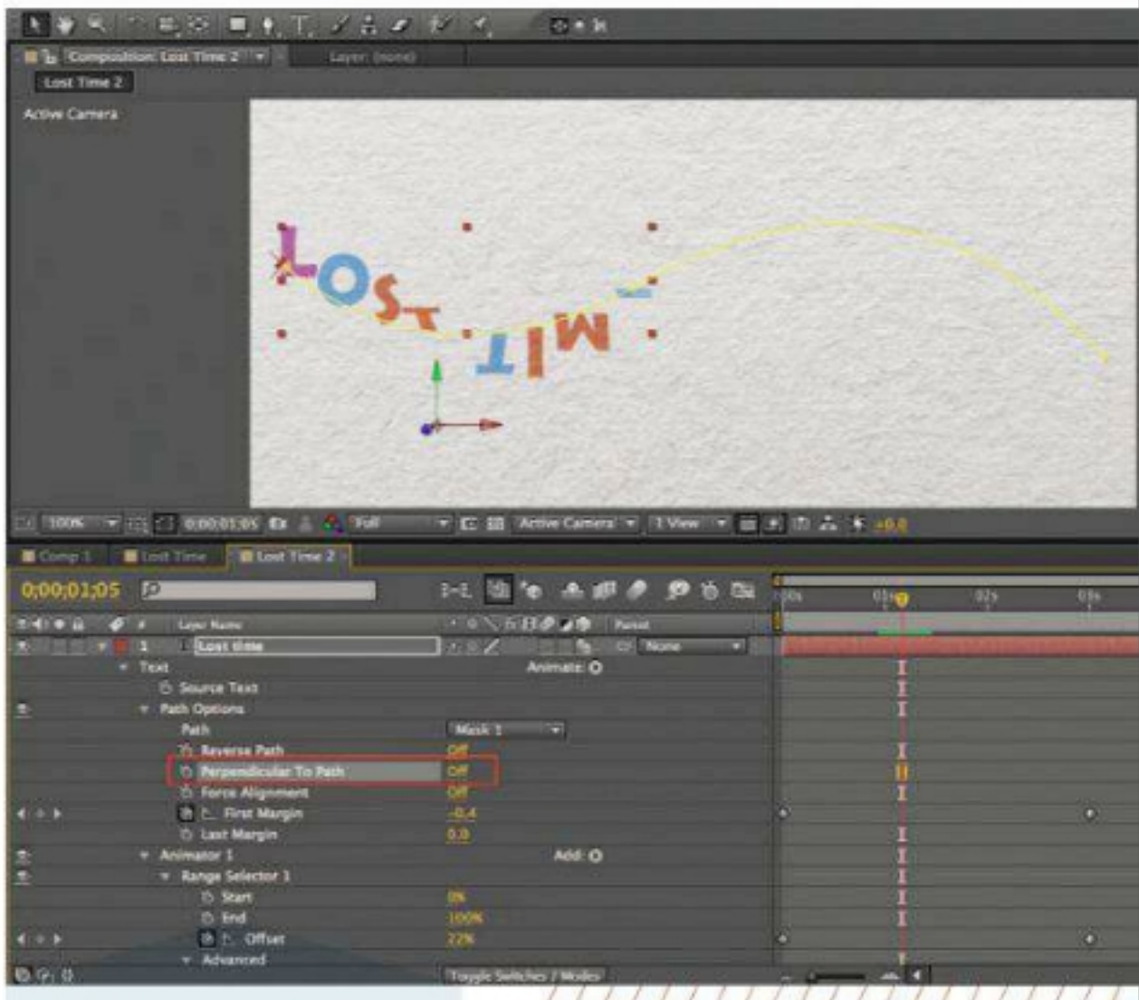
Use text animation properties

Give your title added impact by animating it along a curve using text animators and selectors

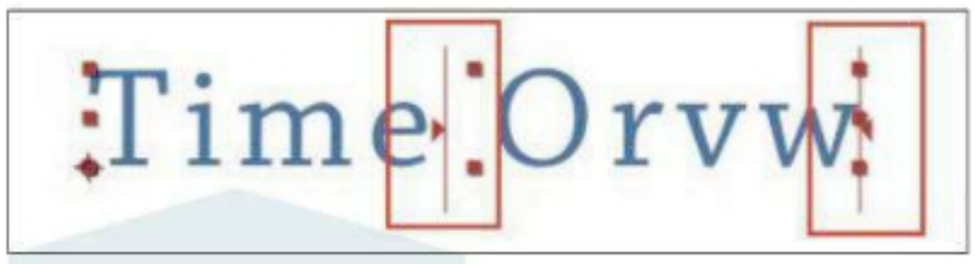
01 Use the Text tool to type your title, setting the font size to 9 px, colour to # 56B9EF, tracking to 87 and All Caps enabled. Everything else remains unchanged from the default values. With the setup work done, we can now move onto the text animation. Expand the Text property of the layer, and click the Animate pop-up and choose Enable Per-character 3D. Click Animate again and select Rotation. Set X Rotation to 1x and + 0.0. Alternatively you can play further with other properties such as the position. Now animate the Offset value under Range Selector, from 100% to -100% between 0s to 3s (Range Selector>Advanced>Shape>Ramp Up).

02 You can add as many animators as you want. So let's animate the colour. Click on Animate again, and select Fill Color>Hue. Expand the Range Selector under Animator 2, change Fill Hue to 0x and +172. Then Animate Offset from 0% to 100% between 0.5s and 1.8s. This is to ensure that there is time for the colour to change. Leave the Range Shape set to Square.

03 To make the text flow along a curve, we can use Path Options. With the Text layer selected, use the Pen tool to create a path mask, then expand the Path Options under Text. In the Path drop-down menu, select Mask 1. Now we can add keyframes to the First Margin property between 0s and 3s. Glide through the Timeline and you'll see the text smoothly animated along the curve.



Switch off the **Perpendicular To Path** option if you want all letters to have the same orientation



Instead of setting the **Start and End** values in Range Selector, you can drag the left margin control or right margin control on the text itself

In the Stroke Effect panel, the **Stroke Sequentially** option enables the letters to appear one by one

→ You can create a custom text animation from scratch by using animator groups. These let you animate the text properties of a selection of characters or a block of text using a range selector to specify how much each character is affected by the animator. Most of the time you only have to set a value for the animator properties (rotation, transparency, colour and so on) but it's the range selector that dictates the part of the text that will be modified with properties.

When using an animator group, therefore, you need to first add an animator. Next use a selector and specify how much the text will be affected. Finally set a value for the animator properties. This represents the result value. For example, Position: 0.0, 7.0, 0.0 means that each unit will move downwards by 7 pixels at the end of the animation. You can also add multiple animators, such as fill and stroke colours.

Aside from range selectors, wiggly selectors are another common and useful way to introduce effects to an animator group. As the name suggests, wiggly selectors randomly 'wiggle' selected units. You can use a wiggly selector

Five pro tips for creating titles

1/ Position text on a mask path

In situations where you have a mask on a text layer, if you choose to, you can make the text follow the mask as a path and then animate the text along the path – or animate the path itself. Use the Pen tool to draw a mask on the text layer, and select the path from the layer's Path property (Text>Path Options>Path). To reposition the text, change the text margins using the First Margin and Last Margin properties in the Timeline.

2/ Enable Per-character 3D

One very useful text feature is Enable Per-character 3D (Animation>Animate Text>Enable Per-character 3D), which can move, scale and rotate individual characters in a 3D space without animating the whole layer. Once enabled, the X, Y and Z properties will automatically pop up. Change the Rotation and Position values, then animate Offset from 0 to 100% under Range Selector. You'll see the text animated in 3D space.

3/ Inter-Character Blending

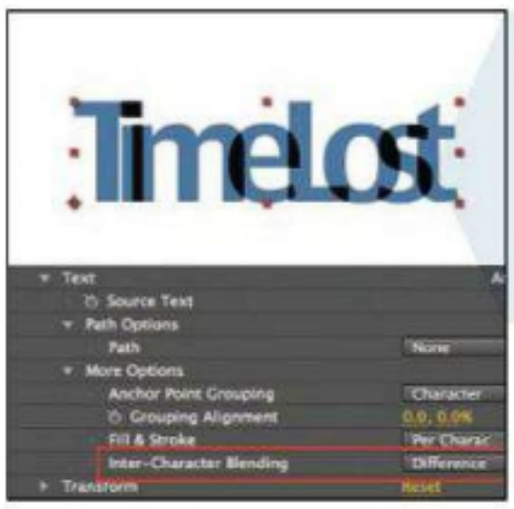
Inter-Character Blending (Text>More Options) is one of the options under the Text layer that often gets ignored. That's a shame because it uses blending modes to affect how overlapping characters interact and offers some really cool effects. Have a play with the blending options to create different looks. Remember, though, that you won't be able to see the effect unless you have a text overlap on the same layer.

4/ Character Offset

You can also specify the offset value for characters (Text>Animate>Character Offset) and animate the range selector, so randomly animated letters will eventually form a word. However, After Effects only has two options: Unicode and Preserve Case & Digits. If you've selected Center for Character Alignment, the position of each letter won't change, but overlapping might occur. To prevent this, select Kerning. The letters' position should now adjust accordingly.

5/ Ramp Up/Down

The default setting of the Shape range selector is Square. This means that each of the characters will be animated one after the other, with the end of each letter animation triggering the next. If you expand the Advanced option, you can adjust the smoothness from 0% for the most rigid effect through to 100% for the smoothest. An alternative way to create a smoother animation effect is to select Ramp Up or Ramp Down under the Shape property.



Inter-Character Blending is similar to the layer blending modes, except it blends overlapping characters rather than layers

When **Shape** is set to Square, characters are selected one after the other

Expand the **Advanced mode** under Range Selector, then change Amount to less than 100%, so each character won't finish the animation

either to enhance the random effect of a range selector or on its own – for example, if you were creating a scene with a bunch of dancing letters. Enable it by clicking the text animator's Add pop-up and choosing Selector>Wiggly. You can delete the range selector under the text animator if you want to use a wiggly selector on its own.

If you expand the Wiggly Selector submenu, you can see text fields for Max Amount and Min Amount: both range from -100% to 100%. These determine the maximum and minimum amount by which the selector will randomly expand or contract the text selection. When both Max Amount and Min Amount are set at 0, there will be no deviation.

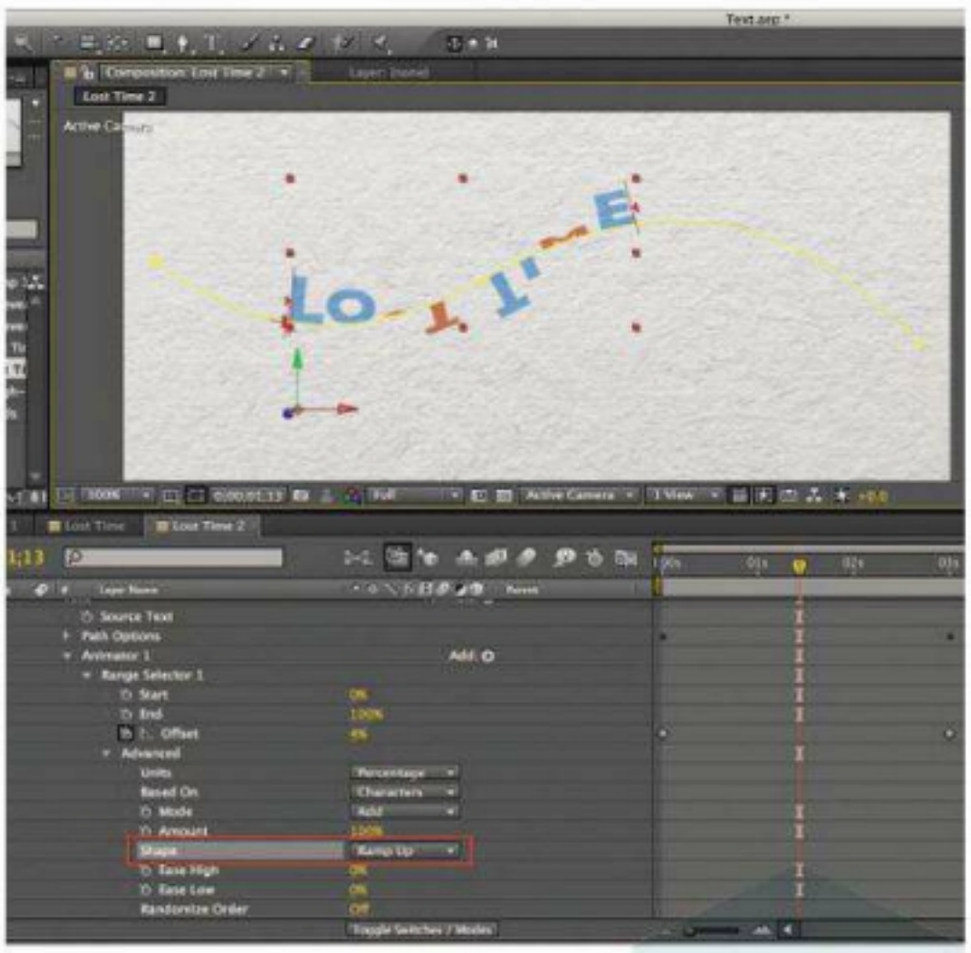
After Effects also enables you to import text from Photoshop or Illustrator. All you need to do is preserve the text layer in Photoshop or Illustrator. After importing it to your project, click on the layer, go to Layer>Convert To Editable Text and it's all ready to be animated.

However, this is by no means everything you can do to text in After Effects. Perhaps you think your title animation needs more wow factor, or you just don't want to be limited by the After Effects text animation options. If so, you could apply a Magnify effect (Effect>Distort> Magnify) or Ripple (Effect>Distort> Ripple) to create a funky dancing effect. You could also use a Directional Blur effect combined with positional animation (Effect>Blur & Sharpen>Directional Blur). Most effects are valid for text layers.

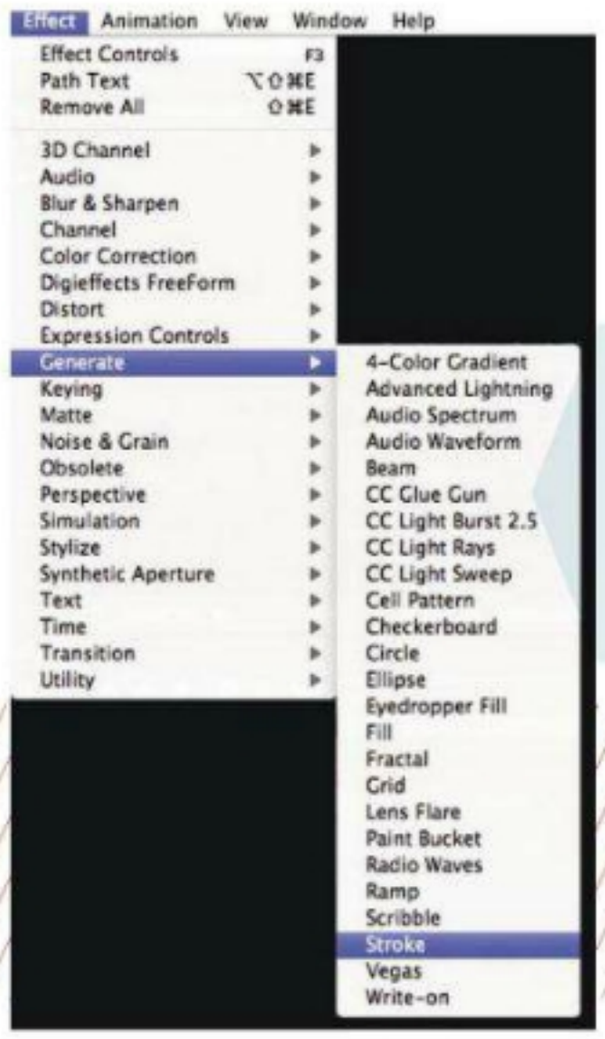
Aside from the Text tool, there are other ways to input type, such as using the Basic Text effect (Effects>Obsolete>Basic Text). You can control the behaviour of the Position point through the Alignment setting in the Basic Text dialog. In older versions of After Effects where the Path Options property group isn't available, you can use Effects>Obsolete>Path Text to create a similar effect and custom path.

If you decide to manually create your own text animation, just convert the text layer to a shape layer (Ctrl/right-click>Create Shapes From Text), but remember that you'll lose the flexibility to edit the text in future.

You can also create a title by using the Stroke effect (Effects>Generate>Stroke), with the text gradually drawing →



When **Shape** is set to Ramp Up or Ramp Down, characters will be gradually selected



The **Stroke** effect offers better control than the one built into the Text options. Apply Effect> Generate>Stroke to a mask layer created from a text layer

→ itself. However, this will only work on masks, so you'll need to choose a font face that has a very simple outline, and then Ctrl/right-click on the text layer and select Create Masks From Text.

With After Effects' text animation options, working with clients has become far more straightforward. Whether your animation is going to be translated into 28 different languages for international mark ets, or you're working with an indecisive client, text is an aspect of any project that's often subject to change. Keep your text editable for future amends: if you have to convert it to a shape or mask object, then keep your original text aside. Once the text needs to be changed, you then just need to copy across the new effects to the new mask or shape layer.

There are plenty of ways to bring more creativity to your titles. The key is, as always, to think outside the box – and never be limited by any tools.

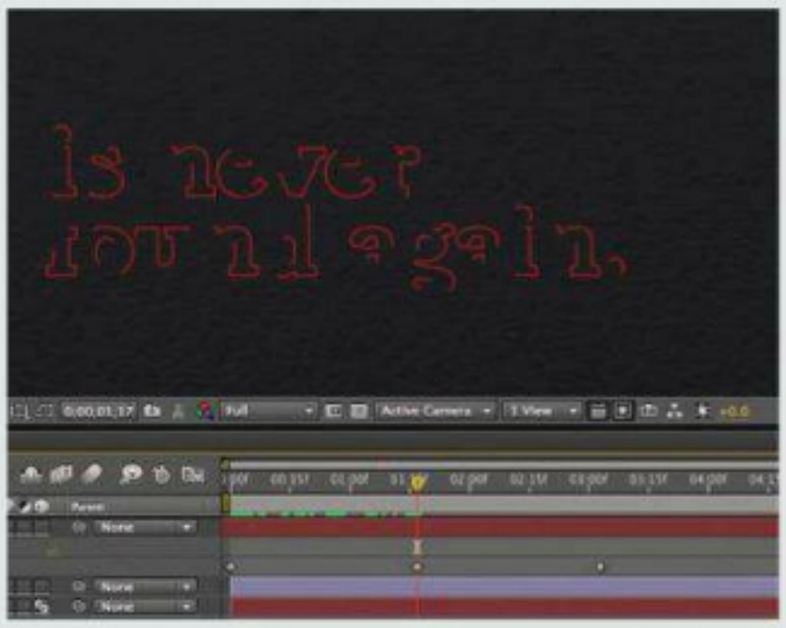
Pro software skills: After Effects

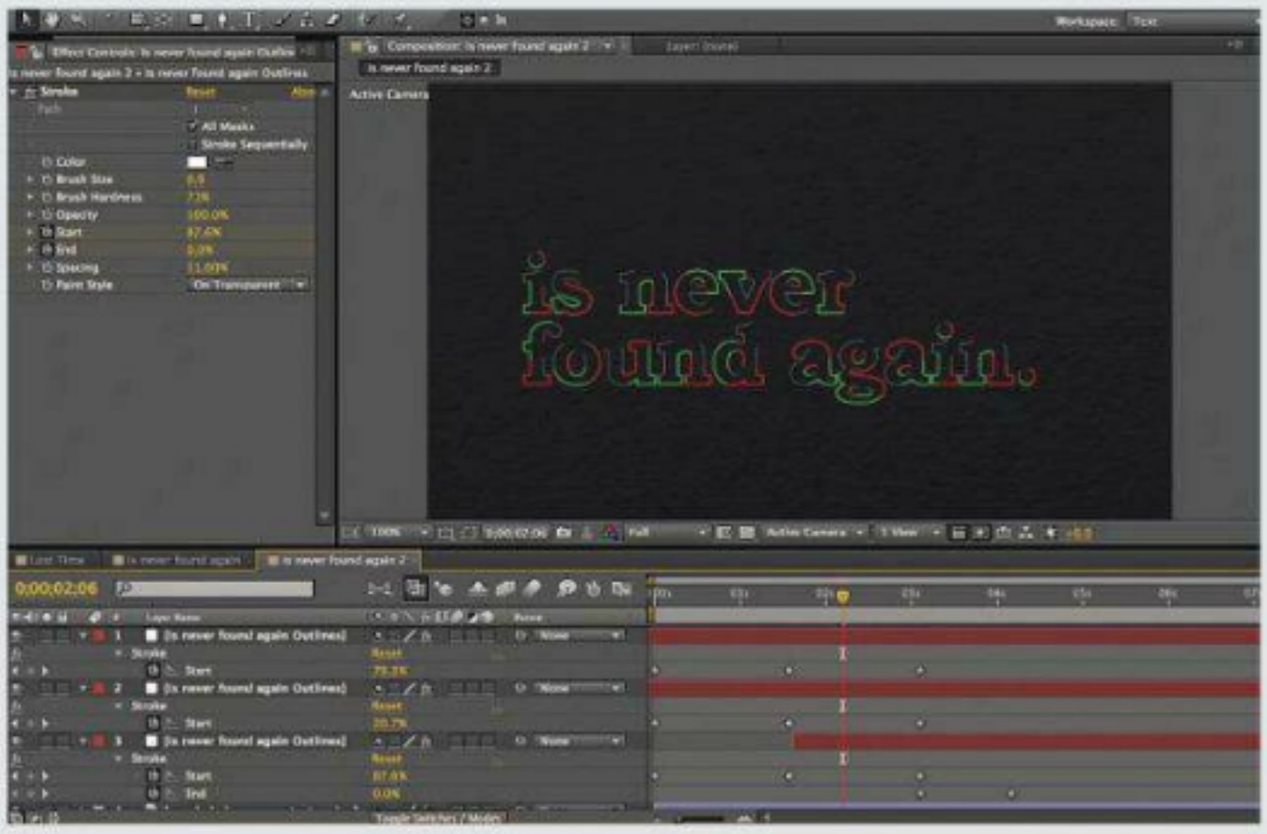
Animate titles with the Stroke effect

Create a title sequence that draws itself by using masks and some effects trickery

01—— Type a phrase, set the font style (we've chosen Bookman Old Style) and Ctrl/right-click on the layer. Select Create Masks From Text. A new layer with a text mask will appear and the original text layer will be invisible. Keep this text layer for future changes.

02—— With the mask layer selected, go to Effect>Generate>Stroke. In the Effect panel, tick All Masks, but leave Stroke Sequentially unchecked. The Stroke setting can be flexible, but Paint Style should be switched to On Transparent. Set the End field as 50%, and animate the Start with values of 50%, -100% and -50% between 0s and 2.75s. By doing this, the animation will start from the middle.





03—— Change the stroke colour to red and duplicate the layer. Now, on the new layer, change the stroke colour to green. At the second keyframe of the Start property, change Start to 0% so that it's animated from 50%, -0 and -50%. The animation will now go in the opposite direction to the first animation. When dragging the time indicator, you can see two different strokes have been animated. You can finish this off by adding a grey stroke animation.

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Mainframe

With stunning motion work for the likes of Coke and Nike under its belt, this dynamic studio pushes After Effects to its limits

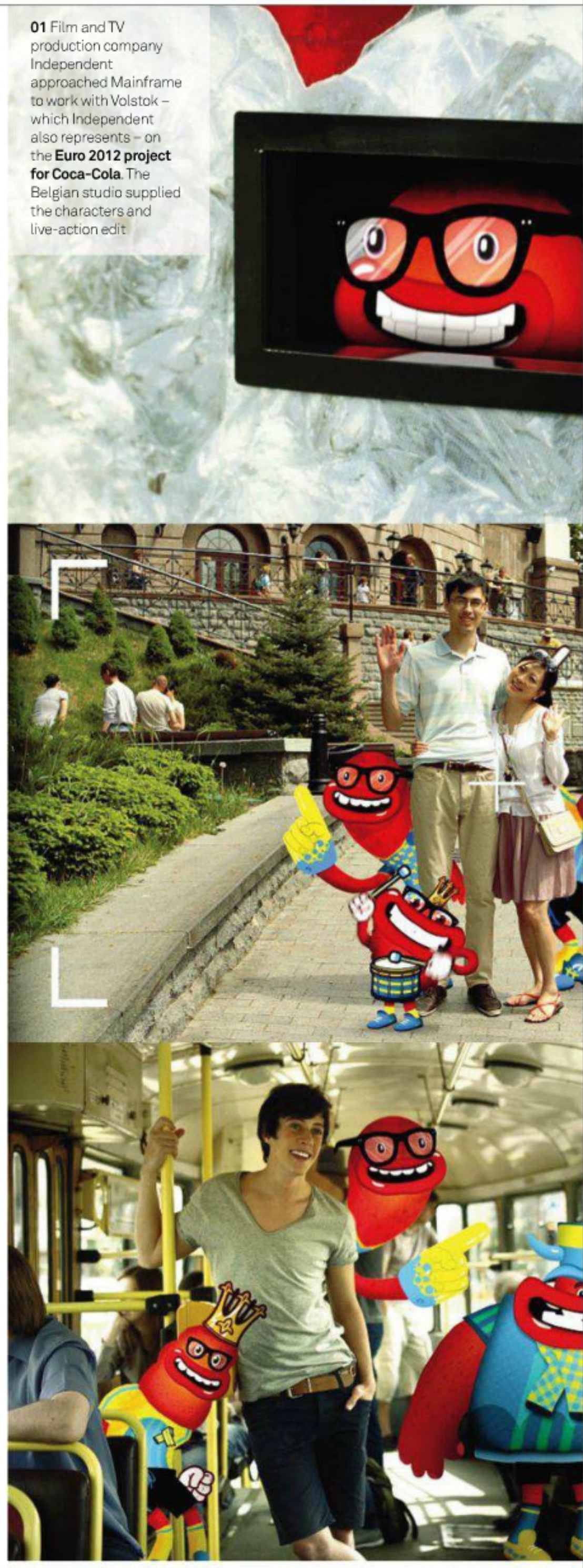
Adam Jenns
The founder and managing director of motion design specialist Mainframe, Jenns started his career the hard way (as a runner) before working his way up at various production companies and eventually founding Mainframe.
www.mainframe.co.uk

Lee Walker
Walker is director of motion GFX at Mainframe. He studied Graphic Arts and Design at LMU before joining broadcast company Flextech (later Virgin Media Television) as a junior designer. He left VMTV as head of design to join Mainframe in 2008.
www.mainframe.co.uk

Founded in 2000, at a time when creating motion graphics was first becoming a realistic option for studios outside of large post-houses, Mainframe has flourished over the last decade into one of the world's leading motion design and animation studios. With offices in London and Manchester, it's home to an impressive team of directors, producers, animators and VFX artists, and specialises in producing and directing commercials and brand films. The 20 full-time staff in London are often joined by another 10-15 freelancers, depending on what creative projects are in progress at any given time – while the smaller Manchester office has six staff and a similar number of freelancers.

So what, if anything, defines the Mainframe style? "There was a time a few years ago when there was a certain aesthetic to our work that was very recognisable, but over the years the team has changed and we've moved into new areas," begins founder and managing director Adam Jenns. "That →

01 Film and TV production company Independent approached Mainframe to work with Volstok – which Independent also represents – on the **Euro 2012 project for Coca-Cola**. The Belgian studio supplied the characters and live-action edit



Pro software skills: After Effects

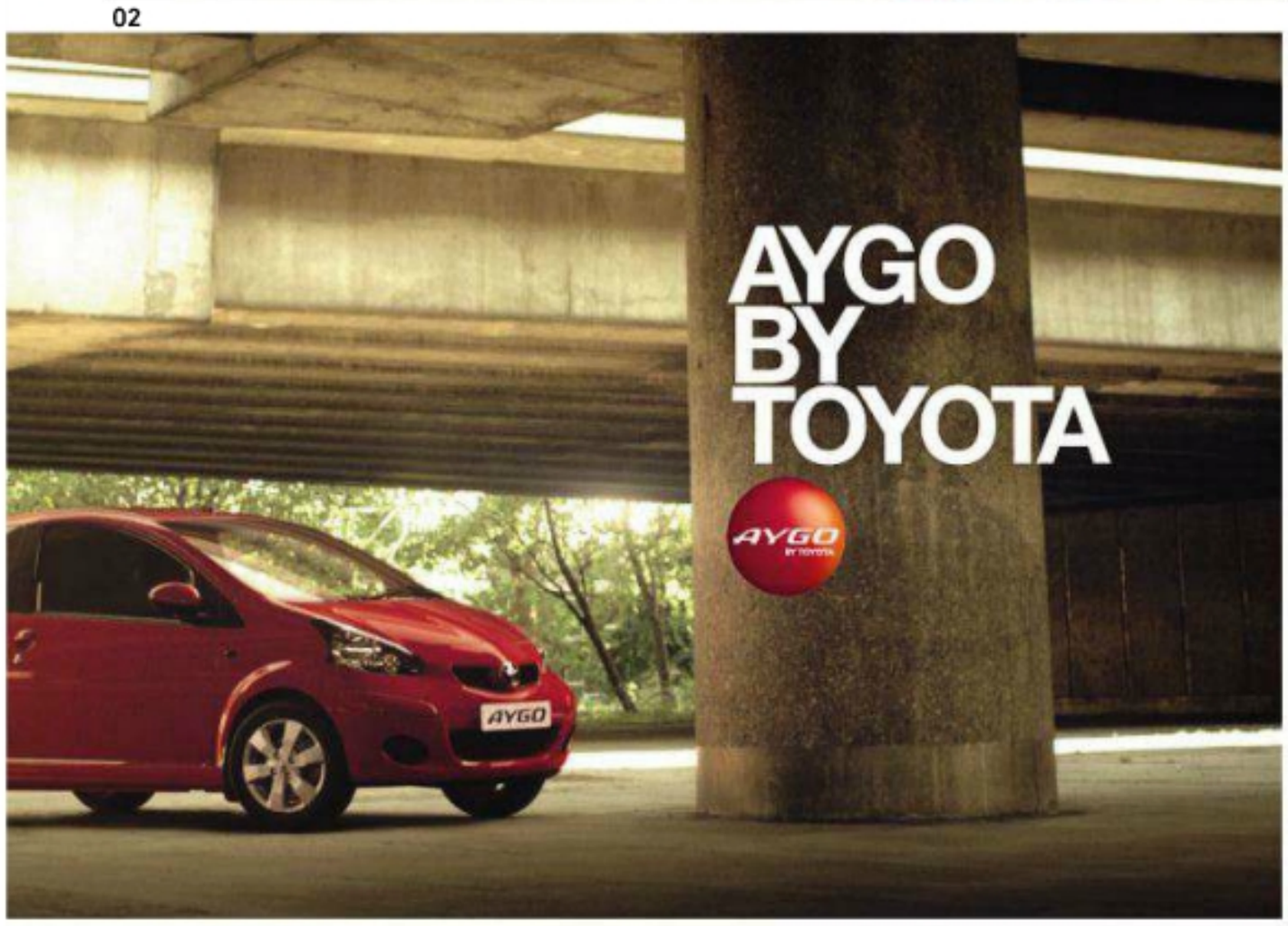
1/60

02 This commercial and stadium graphics package for the **Welsh Rugby Union (WRU)** was commissioned through Golley Slater, with compositing done in After Effects

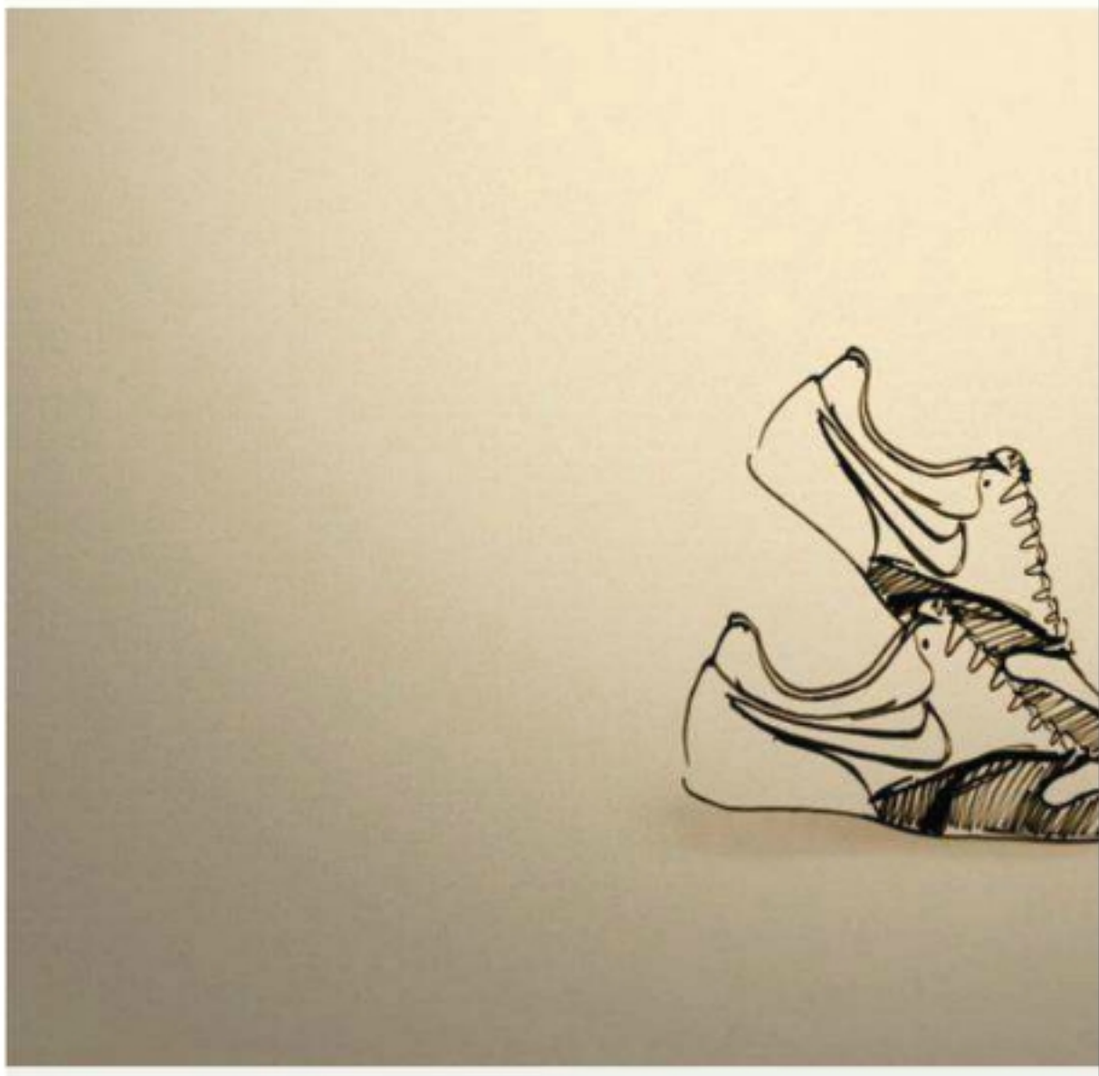
03 Mainframe used AE for comping and titling on this **Toyota Aygo sponsorship ident** for Channel 4's youth strand T4, working alongside production company Blinkink

04 "It had to feel like we'd created the shoes in 3D," says Jenns of the **Nike Evolution** project. "A few deformations of the sole during the run cycle helped create a realistic animation."

02



03



04

→ look and feel has changed, and hopefully progressed. We're now predominantly known for a design-led mix of 2D, 3D and live action," he continues. "I think the Nickelodeon rebrand we completed a couple of years ago sums up what we're trying to achieve, or the Welsh rugby union commercial. Both represent the mix of live action and 3D that we love doing: design meets animation meets visual effects.

"We enjoy working on projects that most people have no real idea of how they were made. We aim to never make work that just washes over people. For it to be successful in our eyes, the audience has to be wowed when they see it and want to watch it over and over, even if it's an advert for something."

Mainframe carried these ideals into its recent series of Coca-Cola commercials for Euro 2012 in the Ukraine and Poland. "It was a big, fast-turnaround project that needed a dedicated team of After Effects animators to work closely with the directors and take their animation to a more polished level than they could achieve alone," explains head of design Lee Walker. Prep for the job started with the IK rigging of all the 2D characters, followed by the tracking of the live-action plates and rotoscoping. It took five weeks in total and was produced entirely in After Effects, with a specialist team of freelance riggers, animators and match-move artists brought in.

"The trickiest aspect was compositing bright and vibrant 2D characters into a live-action environment," Walker admits. "That, and working out how to add shadows without compromising the clean look of the characters."

Another recent project, Nike Evolution, required Mainframe to work with a selection of still photographs to tell the story of the iconic sports brand's evolution. "We were supplied with photographs of the shoes in two stages: flat, and with the toe bent," reveals Walker.

"After carefully rotoing each of the photos, we referenced footage of a runner on a treadmill to animate

Pro software skills: After Effects

a run cycle, and used this animation to create a run cycle of each of the featured shoes," he continues. "We could then edit the shoes together to show the evolution and developments that Nike has made over its history."

Simple but effective, the whole project took just two weeks to complete. "It was reviewed in *Campaign* magazine, and the simplicity of message seemed to go down particularly well," Walker reflects. "It's nice to work on projects when clients understand how effective a simple message can be."

After Effects is integral to the studio's daily workflow: "It's indispensable for motion graphics and 2D animation, but the compositing possibilities mean that almost everyone has at least a basic knowledge of it," says Walker.

And while Maya and increasingly Cinema 4D play a fundamental part in 3D work, After Effects tends to be involved at some level in every single project that the studio takes on, from compositing motion graphics to match-moving, tracking and animating characters – either in 2D or the '2.5D' option available in CS5. "Many of our designers also use After Effects for creating artwork, often bypassing Photoshop, which can be useful as it's always possible to unpick artwork down to its origin, allowing for amends even from an early stage in a project," adds Walker.

"Despite Nuke becoming the primary comping tool for our VFX work, our animators and designers will often use After Effects for slap comps or proof of concept," he explains. "During VFX projects we can often be found using After Effects and Nuke concurrently at the final stages, due to the ease and familiarity of animation for text, logos and any supporting animation elements that might be added to a scene."

The studio recently completed a project for Pond's White Beauty cream, which began when regular collaborator Christian Bevilacqua – a director at Stink Digital – approached Mainframe with a brief to help create a motion piece in →

05 Digital agency Hyper Happen commissioned Mainframe back in 2009 to direct this colourful **spot for Nokia** about saving energy. Both the animation work and compositing were done in After Effects

06 Directed by Jody Malam, with compositing and grading completed by Mainframe, this **MTV Camden Crawl** project revolutionised the studio's VFX pipeline at the time

07 Under the direction of regular collaborator Christian Bevilacqua at Stink, this **sequence for Huggies nappies** presents a fantastical land representing the ups and downs of being a parent

08 A potentially embarrassing subject is dealt with in a fun but informative way in this **spot for COI Sexual Health**. The handmade objects for the speech bubbles were shot on blue screen in situ

09 The flying clothes at the start of the **Pond's White Beauty** project were 3D tracked using PFTrack, while the camera move in the final scene was created in Maya and imported into After Effects

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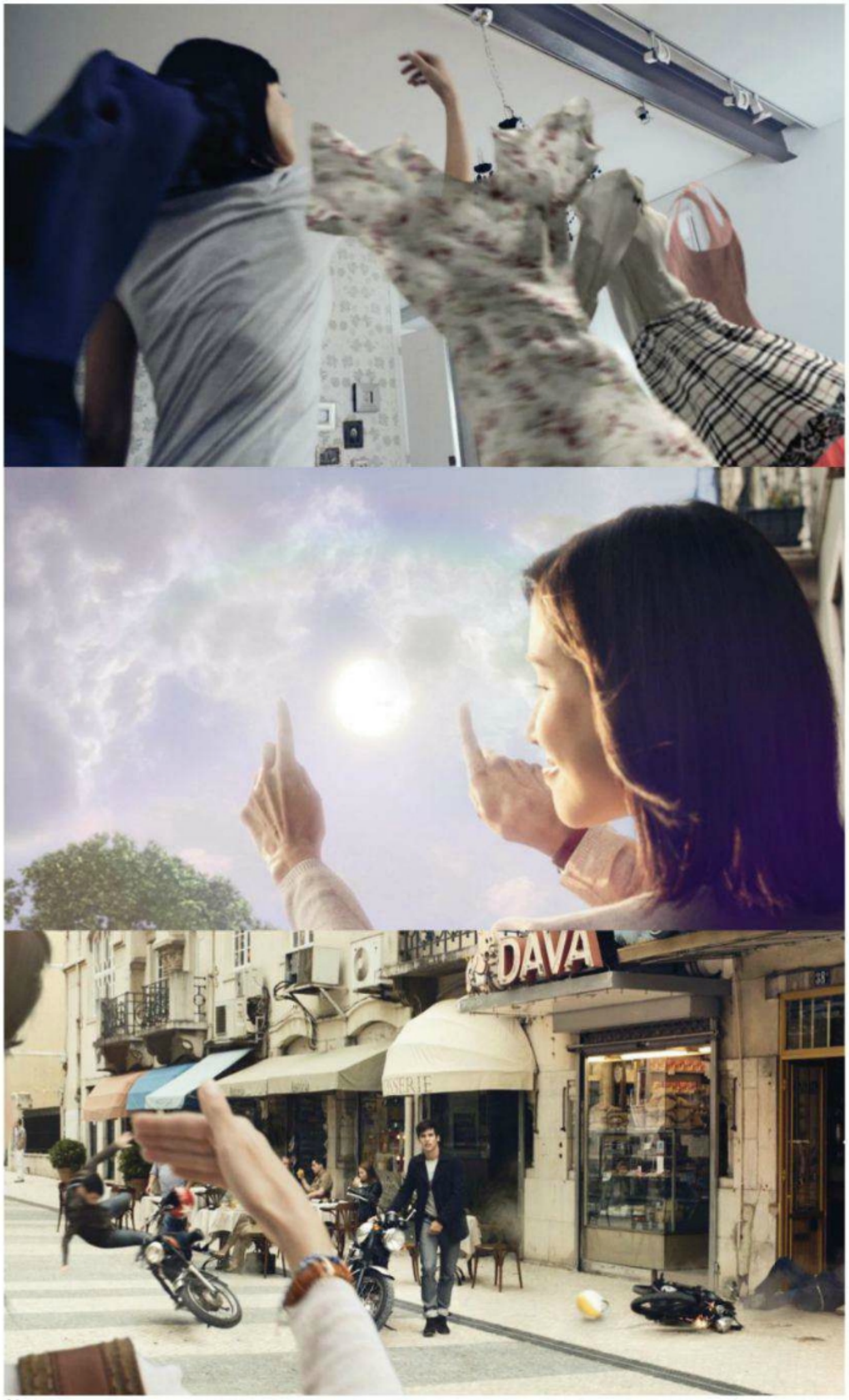
→ which the main subject manipulates the real world. "It was important that the gestures used felt as though they were really manipulating the world, not just wiping over the image," explains Walker. "Contact was key."

Having already worked with Bevilacqua on a recent NFL Superbowl spot, the Mainframe team attended the shoot in Portugal as post-production supervisors. Post-shoot prep included 2D/3D tracking, keying, rotoing and wire removal, followed by slap comps and animation tests before the final composite in After Effects.

A 3D animator was brought on board to help out with the shoot supervision and all 3D work, plus a couple more freelancers for keying, roto and tracking. "The director is the sort of guy who likes to get his hands dirty, so he was part of the compositing team," he explains. "The contact between the subject and her admirers works really well. Hand gestures involving manipulating the real world are not a new idea, but the approach to these versions didn't rely heavily on well-known phone gestures; rather on considering how you might do this in real life," he reflects.

While many self-taught motion designers might pick up tricks and techniques through personal experiments, Walker confesses that there's rarely enough downtime in this ever-bustling studio to get these off the ground – much as the team would like to. "We tend to develop skills on the job," he concludes. "Discovering new techniques is often born from necessity, or just figuring out the best way to complete a job to the very best standard."

Pro software skills: After Effects



09

Mainframe's pro tips for motion graphics

1. Upgrade to CS5(.5)

Although certain clients might require templates supplied in CS4 format, Mainframe completes most projects in CS5. "The biggest advantage has been the greater rendering power, now that it's a 64-bit application," explains Walker. "It finally takes full advantage of having multiple cores on a machine."

2. Animate with expressions

"From simple parenting of transformations to more complex delay/relative relationships, expressions provide not only labour-reducing free animation, but also make you feel clever," grins Walker. "Take advantage of them: even if you struggle with the syntax, they're really easy to look up on Google and then modify."

3. Try rigging with Duik

Walker recommends keeping an eye on independent developers to expand After Effects where possible. "Some great tools are being written that make life that little bit easier," he says, drawing attention to IK rigging script 'Duik', by Nicolas Dufresne, as an example: "It makes it more intuitive when you're setting up characters to animate"

4. Import using Immigration

Mainframe uses the Immigration tool extensively to import assets into After Effects: "It's saved so much time and laborious individual importation," insists Walker. "It really comes into its own on compositing projects, where you have multiple passes all made up of image sequences. It scans all the possible sequences in a root folder and enables you to batch import or replace them."

5. Keep it clean

"A good folder structure and clear route through pre-comps will save you a lot of time, especially if you're part of a team," argues Walker. Coloured labels and notes were essentially put there to make your life easier, he points out – so make good use of them.

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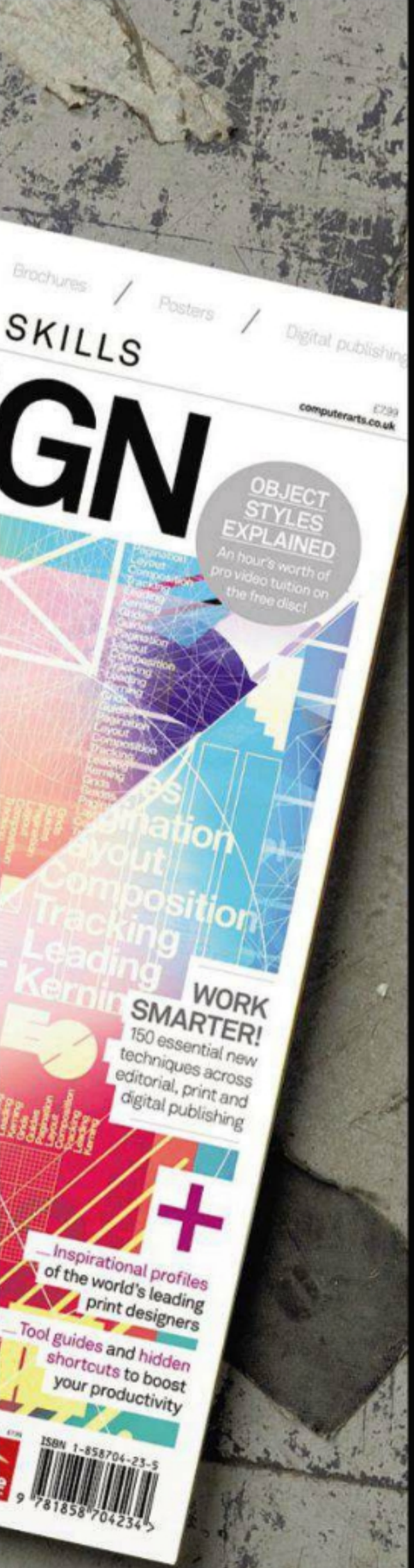
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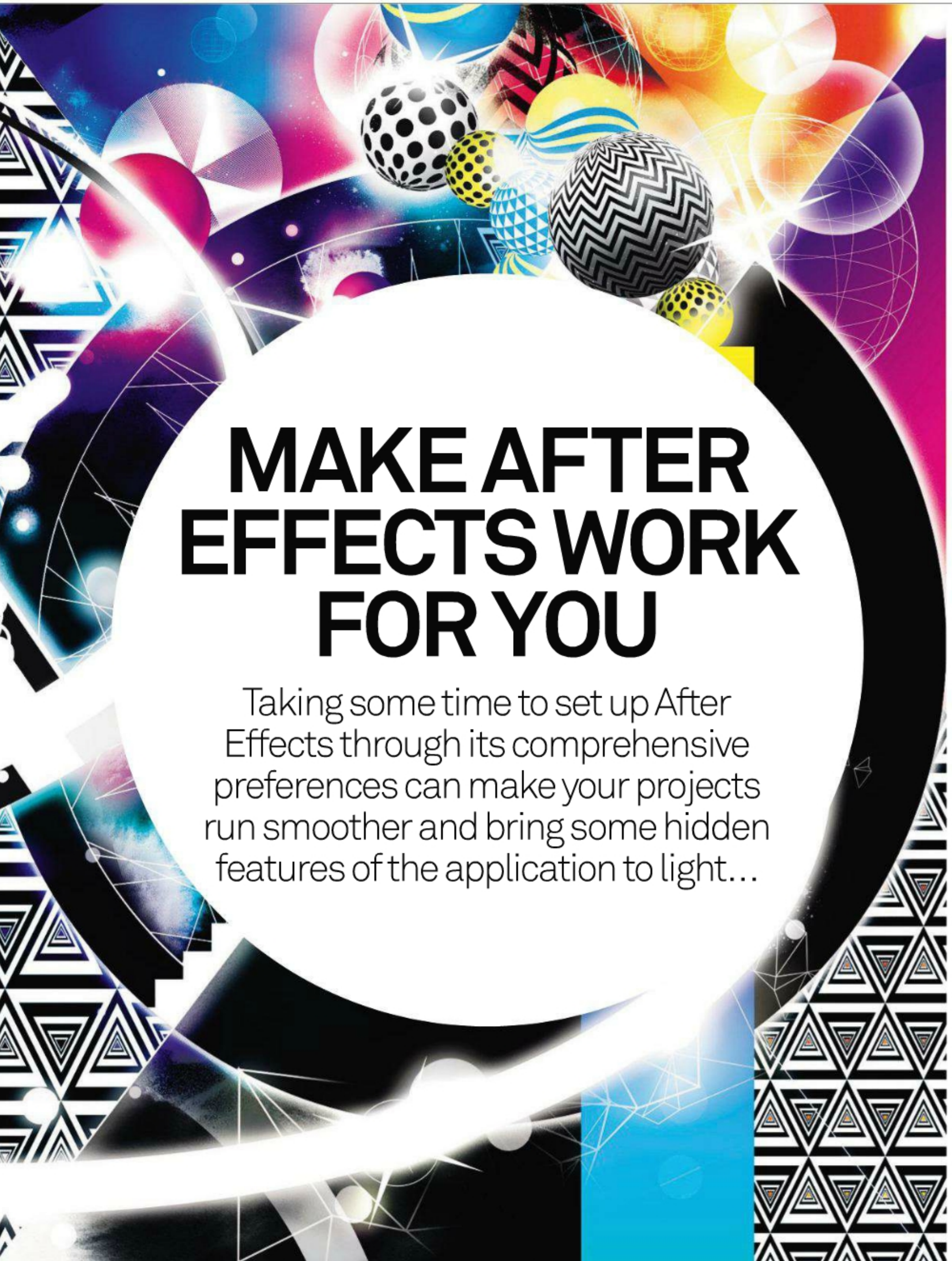
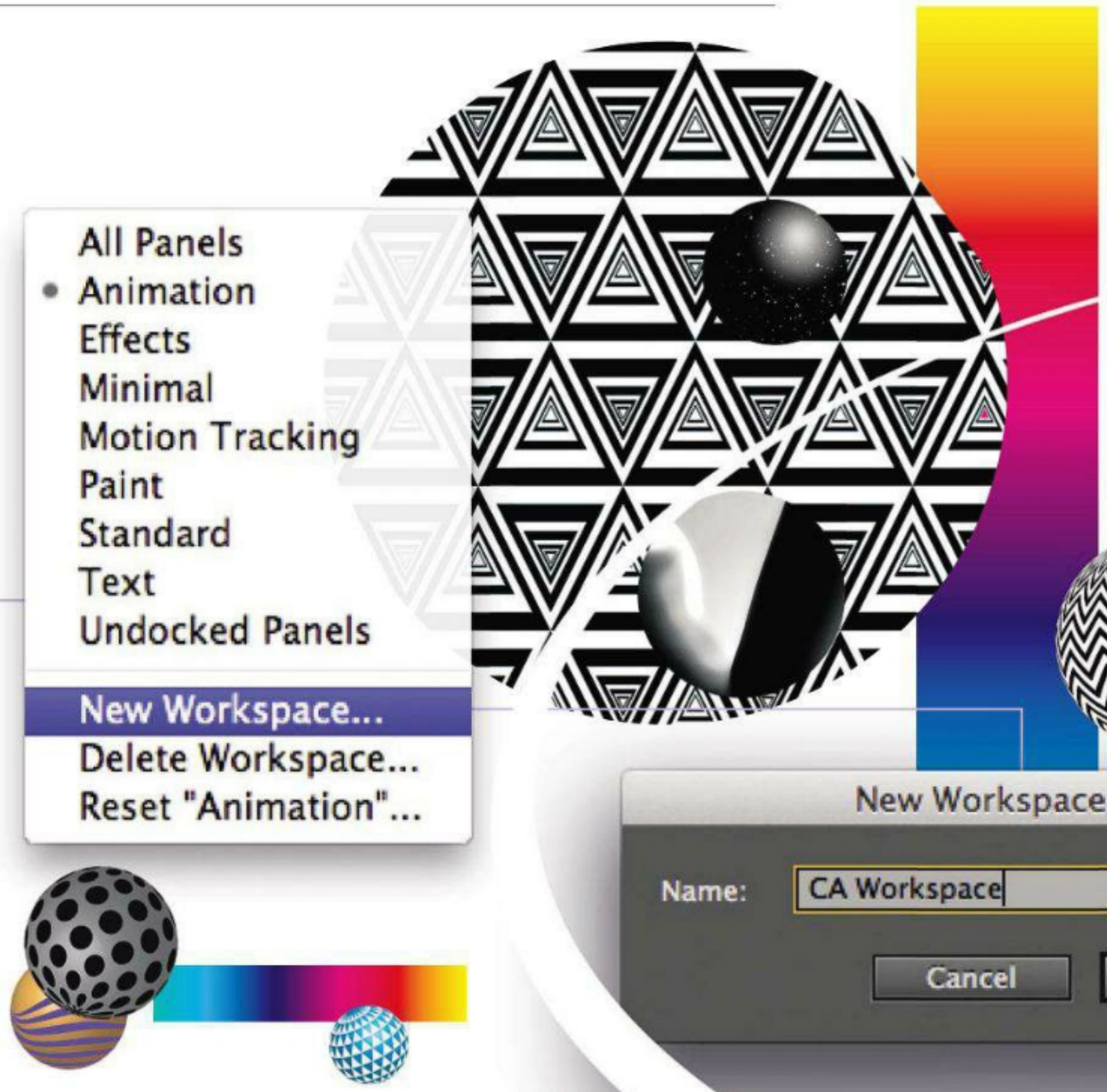


MAKE AFTER EFFECTS WORK FOR YOU

Taking some time to set up After Effects through its comprehensive preferences can make your projects run smoother and bring some hidden features of the application to light...

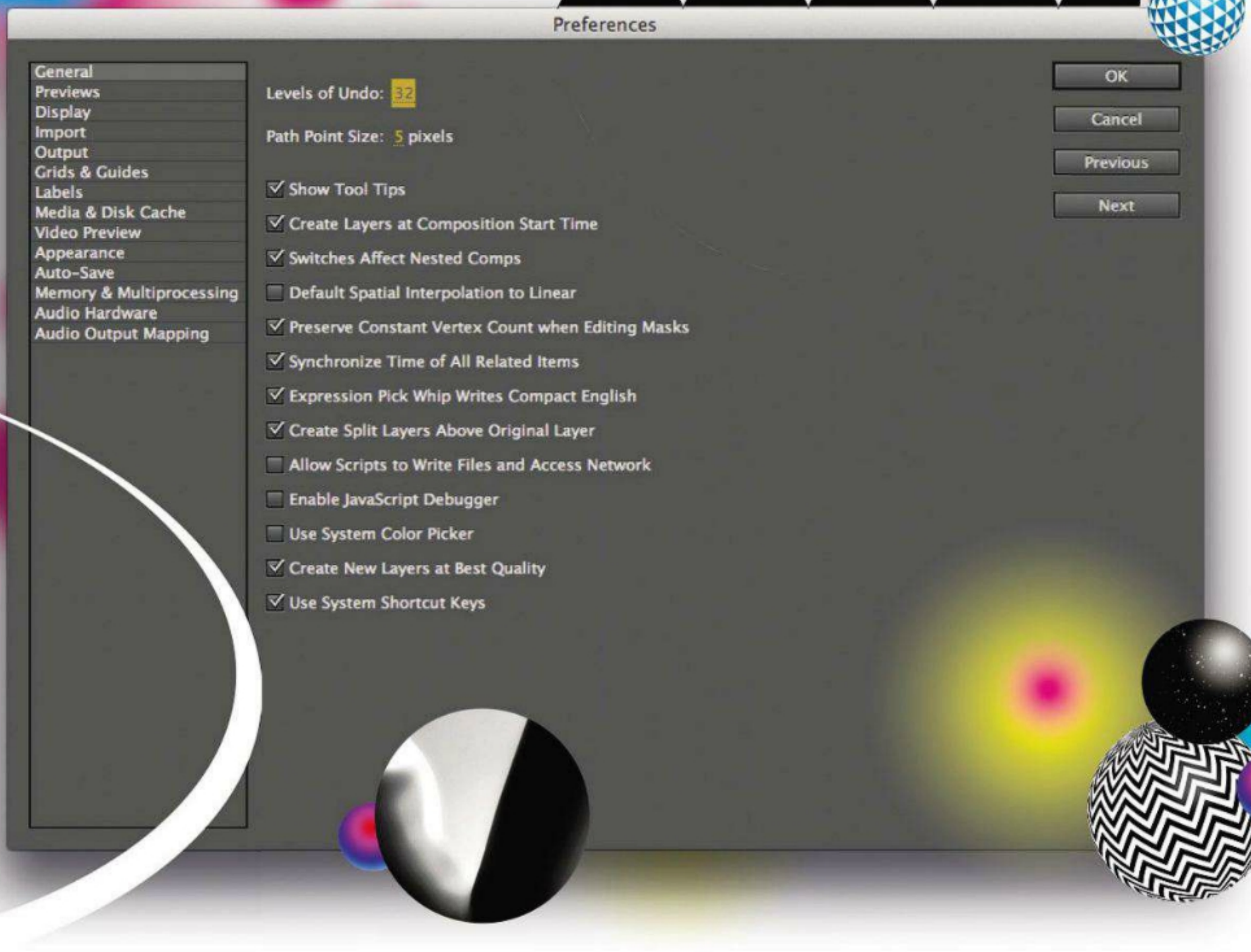


After Effects is a true powerhouse of an application with many different uses for many different kinds of work. From titling to motion graphics to professional compositing, it can do pretty much anything you can think of when it comes to visual effects. And like all the applications in the Creative Suite, it also has many different options for customising the application and making it more in-tune with how you work and your output needs. Whether it's the interface itself or the nuts and bolts behind it, it's easy – although not necessarily that exciting – to make After Effects work better for you.

Arguably the first thing to do is work out what you're using After Effects for. Are you creating titles? Compositing? Motion tracking? Or maybe just adding effects to footage or 3D renders. Whatever you're doing, it pays to get the interface working the way you want it to. You can do this manually of course, by undocking panels you don't use and then closing them and opening the panels you do need and docking them accordingly. Once you've done this, you can save your workspace using the Workspace dropdown in the Tools panel. Just hit 'New Workspace', give it a name and you can then access it from the same Workspace drop-down. Also, there are a number of preset workspaces that give you quick access to panels for common tasks. The All Panels options shows everything in AE – and you almost certainly won't need this option (although the app does arrange everything very neatly). Then options for Animation, Effects, Motion Tracking and Paint are all very handy, as is the Minimal option for stripping out everything apart from the Timeline, Tools and Composition windows. In short, whatever you use AE for, you can customise the interface to your needs, and should do before you start each project.

Another thing to do – although it can seem a bit laborious – is to work through After Effects' vast array of preferences, making sure the application is set up for your workflow. Unless you know exactly what you need to tweak, taking some time to work through the preferences in order will give you a greater understanding of how After Effects works and how it can be customised. The General pane contains a lot of seemingly innocuous check boxes – but the truth is that these really affect how you use the application on a regular basis.

But first at the top, specify the levels of undo you require. The default is 32, but you can put this up to 99. Below this, Path Point Size specifies the size of the bezier direction handles and vertices for masks and shapes, direction handles for motion paths, and other similar controls. You probably didn't even know you could change the size, and it will by no means change your workflow, but



it's handy to know you can do this (maybe if you're working on an ultra high-res screen). The next option is just to show tool tips – a quick explanation appearing when you hover over an interface element by default. These are pretty annoying, so you might want to turn them off.

The 'Create Layers At Composition Start Time' option is on by default. If you uncheck this box layers will begin at the currently selected time. 'Switches Affect Nested Comps' means that if you toggle video, audio or other switches this affects everything inside a nested composition. The next option – 'Default Spatial Interpolation to Linear' may be slightly baffling but it's not complicated. Think of interpolation as tweening – filling in the missing data between two keyframes. This option, by default, is turned off – giving a more natural look to your motion. If you want it to default to a more uniform rate of change, check this box. You can of course change interpolation methods as you work, so there's a reason this is unchecked by default. Similarly, 'Synchronize Time Of All Related Items' makes sure compositions related by nesting keep the same time.

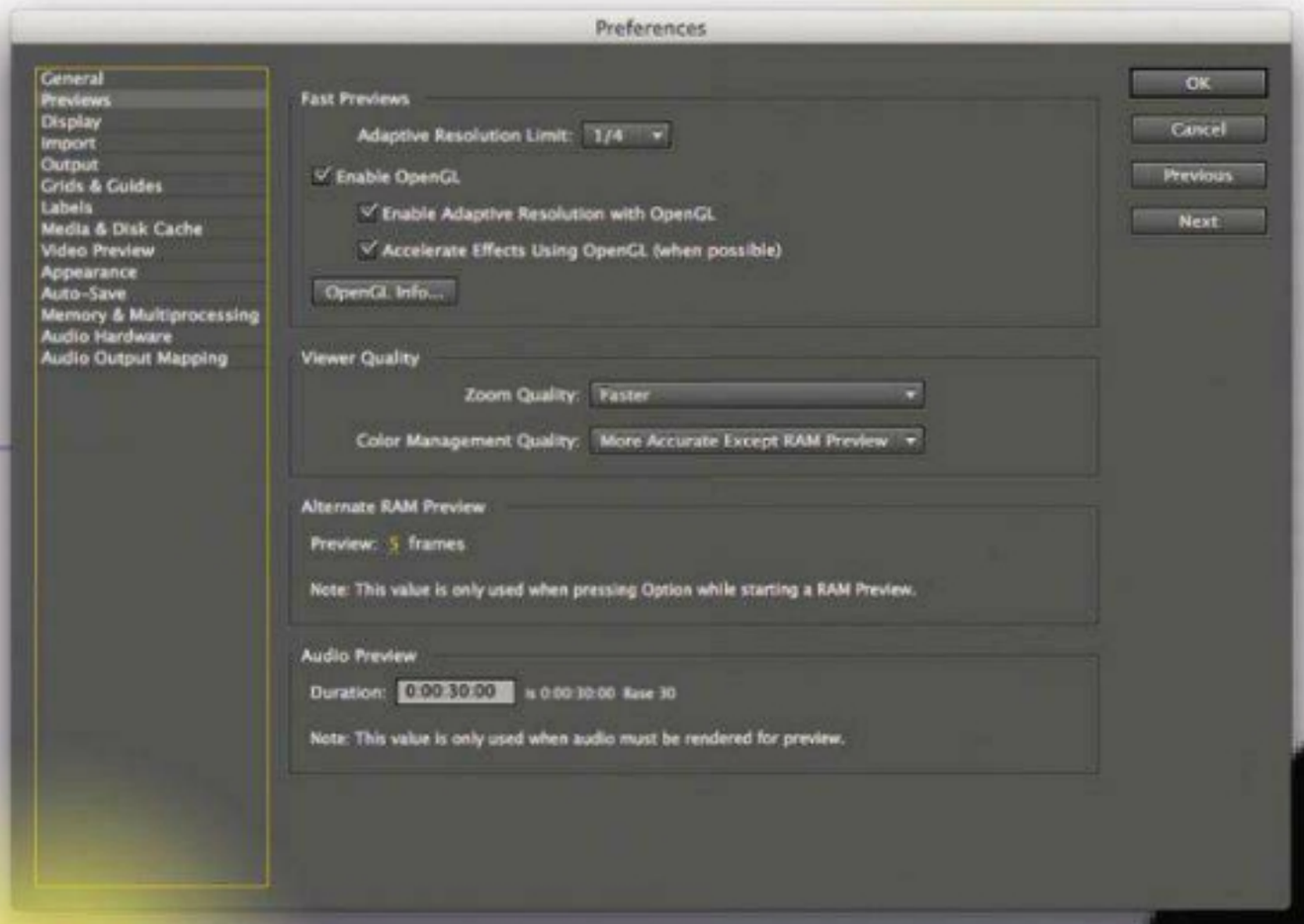
'Preserve Constant Vertex Count When Editing Masks' is something you'll probably leave checked. By default, when you add a vertex – or point – to a path, that point appears on the path throughout the duration of the path but only reshapes the path at the time you added it. Similarly, when you delete a point, it's deleted from the path throughout the duration of the path. Unchecking this preference option prevents After Effects from adding and deleting vertices throughout the duration of the path. Again, you'll mostly want to leave this checked – unchecking it for specific animation or masking tasks.

The next option, 'Expression Pick Whip Writes Compact English', is checked by default and you should generally keep it that way. If you're not planning to share your projects across languages, you can uncheck it.

'Create Split Layers Above Original Layer' simply makes split layers appear above your original layer in the timeline – if you want them to appear below, deselect this option. And the 'Allow Scripts To Write Files And Access Network' is pretty self-explanatory.

'Enable JavaScript Debugger' is something you'll only want to check if you're heavily into scripting in AE and the Use System Color Picker enables you to use the system's colour picker rather than the Adobe Colour Picker.

If you uncheck 'Create New Layers At Best Quality', new layers will be created at draft quality – so usually you'd want to keep this checked. The same goes for the 'Use System Shortcut Keys' option (on the Mac) – make sure you keep it checked.



Preferences
Motion Path
No Motion Path
All Keyframes
Disable Thumbnails in Project Panel
Show Rendering Progress in Info Panel and Flowchart
Hardware Accelerate Composition, Layer, and Footage Panels
Show Both Timecode and Frames in Timeline Panel

So the General Preferences pane is quite exhaustive – but fine-tuning it and knowing what everything does is essential.

Moving on, things get a little easier and quicker to sort out. The Previews pane gives you a few options to look at. In the Fast Previews area the 'Adaptive Resolution Limit' (specifying the minimum resolution at which AE previews layers when working on complex animations or motion graphics – the default is 1/4 res); and the 'Enable OpenGL' should pretty much always be checked to maintain high-quality previews (as long as your video hardware is up to scratch). The Viewer Quality section enables you to adjust zoom and colour management quality (Faster, More Accurate or More Accurate Except RAM Preview – the latter option uses is more accurate for manual previews and standard previews, but is faster for RAM previews). The Alternate RAM Preview is interesting, enabling you to set the number of frames to preview when you hit the Alt/Option key when starting a RAM preview. And the Audio Preview duration specifies the length of audio that's previewed when audio has to be rendered.

When you're animating things such as Position, Anchor Point, and effect control point properties, the motion is shown as a path. In the Display preferences you can specify how this path is displayed – just pick an

After Effects integration

After Effects works seamlessly with Adobe's other Creative Suite apps – and here's how you can make your workflow much more efficient...

In a motion workflow, After Effects and Premiere Pro are an ideal pairing. For a start, After Effects projects can be exported as Premiere projects, maintaining folders as bins, individual edits, markers, keyframed effects, nested sequences, transitions, and more. You can also drag and drop or copy and paste clips and timelines between the two applications. In addition, if you have Creative Suite Production Premium, you can start the capture process from within After Effects – very handy.

And it works the other way as well. You can transfer groups of edited clips to After Effects from Premiere extremely quickly – Premiere Pro re-creates the structure of your clips in an After Effects composition, and then imports the composition into the timeline using Adobe Dynamic Link. As you make changes in After Effects, these are reflected in Premiere Pro. Again, it makes for a seamless workflow.

After Effects also works brilliantly (as you would expect) with Photoshop and Illustrator – being able to import native PSD files with layers intact. You can even import PSD files with 3D layers.

As far as Illustrator goes, you can copy and paste vectors directly into AE to use as masks or motion paths. Finally, if you intend to author DVDs in Encore, you can save out AE files with markers that Encore reads as chapters.

This is just the basic integration – if you're looking to streamline your motion workflow, Creative Suite Production Premium may well be worth a look.

option. the other display options are very dependent on your specific preference to how things are displayed in AE – from how rendering progress is displayed to whether thumbnails are shown in the Project panel.

Moving on to the Import preferences. The Still Footage area enables you to specify the duration of the still footage that you import – usually keeping it to Length Of Composition will suffice. When you import a sequence of stills, that sequence assumes the frame rate specified by the Sequence Footage preference in Import. And finally, the three drop-downs (in CS5.5) enable you to choose drop-frame or non-drop-frame timecode for Indeterminate Media NTSC.

In the Output preferences you can, rather handily, specify After Effects to segment sequences or video-only exports if they are over a certain amount of files or filesize. This is handy if you have a huge movie (over 4GB) and you are exporting on Windows with a FAT32 formatted disk. You can of course also use this feature if you want to break your movie down into segments of a certain filesize for distribution on physical media.

Grids & Guides is pretty self-explanatory, giving you the option to change colour and style of grids and guides. You can also change safe margins – title safe and so on. Labels is also very handy, enabling you to customise the default label colours of footage and elements sucgh as cameras and lights.

The Media & Disk Cache options enable you to specify a folder for caching as well as a shared media cache folder across apps such as Adobe Media Encoder, Premiere Pro and Encore. The Video Preview option enables you to specify an output device (by default it's Computer Monitor Only) and the Appearance pane enables you to change the look and feel of the interface.

Auto-Save is a good one to turn on. You can specify how often AE saves your file. And the final three preferences – Memory & Multiprocessing, Audio Hardware and Audio output Mapping, give you control over AE depending on your hardware configuration.

As you can see, there are many things you can tweak in After Effects. It may not be the most exciting job in the world, but going through and setting up the application to work how you want it to is a must. And as you explore the preferences, you may lead yourself down a rabbit hole and discover new ways of working and features and workflows you didn't know existed.

KEYBOARD SHORTCUTS

After Effects

GENERAL

Select all	**Ctrl/Cmd+A**
Deselect all	**Ctrl/Cmd+Shift+A**
Open selected layer	**Numeric Enter**
Duplicate layers	**Ctrl/Cmd+D**
Purge all	**Ctrl/Cmd+Alt/Opt+/**
Interrupt script	**Esc**
Open recent	**Ctrl/Cmd+Alt/Opt+Shift+P**
New folder	**Ctrl/Cmd+Alt/Opt+Shift+N**
Project settings	**Ctrl/Cmd+Alt/Opt+Shift+K**
Find in Project panel	**Ctrl/Cmd+F**

TOOLS

Activate Selection	**V**
Activate Hand	**H**
Quick Hand	**Space bar**
Zoom In	**Z**
Zoom Out	**Alt/Opt+Z**
Rotation	**W**
Roto Brush	**Alt/Opt+W**
Cycle through Camera	**C**
Pan Behind	**Y**
Cycle Mask and Shape	**Q**
Cycle Type	**Ctrl/Cmd+T**
Cycle Pen	**G**
Cycle Brush/Eraser	**Ctrl/Cmd+B**

TIMELINE

Go to specific time	**Alt/Opt+Shift+J**
Go to beginning	**Shift+Home**
Go to end	**Shift+End**
Go to previous or next	**J/K**
Go to Layer In point	**I**
Go to Layer Out point	**O**
Scroll to current in Timeline	**D**

PREVIEWS

Start or stop preview	**Space bar**
RAM preview	**0 on numeric keypad**
Take snapshot	**Shift+F5**
Display snapshot in active viewer	**F5**

FOOTAGE

Import	**Ctrl/Cmd+I**
Add selected items	**Ctrl/Cmd+/**
Replace footage	**Ctrl+Alt/Cmd+Opt+/**
Delete footage	**Ctrl/Cmd+Delete**
Edit Original	**Ctrl/Cmd+E**
Replace selected item	**Ctrl/Cmd+H**
Reload selected item	**Ctrl/Cmd+Alt/Opt+L**

LAYERS

New solid layer	**Ctrl/Cmd+Y**
New null layer	**Ctrl+Alt/Cmd+Opt+Shift+Y**
New adjustment layer	**Ctrl+Alt/Cmd+Opt+Y**
Select next/last layer in stacking order	**Ctrl/Cmd+Down Arrow Up Arrow**

KEYFRAMES

Toggle between modes	**Shift+F3**
Select all	**Click property name**
Select all visible	**Ctrl/Cmd+Alt/Opt+A**
Easy ease selected keyframes	**F9**

TEXT

New text layer	**Ctrl/Cmd+Alt/Opt+Shift+T**
Align left	**Ctrl/Cmd+Shift+L**
Align Text Centre	**Ctrl/Cmd+Shift+C**
Align Text Right	**Ctrl/Cmd+Shift+R**
Align Text Vertical	**Ctrl/Cmd+Shift+L**
Align Text Bottom	**Ctrl/Cmd+Shift+R**
Open Project panel	**Ctrl/Cmd+0**
Open Tools panel	**Ctrl/Cmd+1**
Open Info panel	**Ctrl/Cmd+2**
Open Preview panel	**Ctrl/Cmd+3**
Open Audio panel	**Ctrl/Cmd+4**
Open Effects & Presets	**Ctrl/Cmd+5**
Open Character panel	**Ctrl/Cmd+6**
Open Paragraph panel	**Ctrl/Cmd+7**
Open Paint panel	**Ctrl/Cmd+8**
Open Brushes panel	**Ctrl/Cmd+9**

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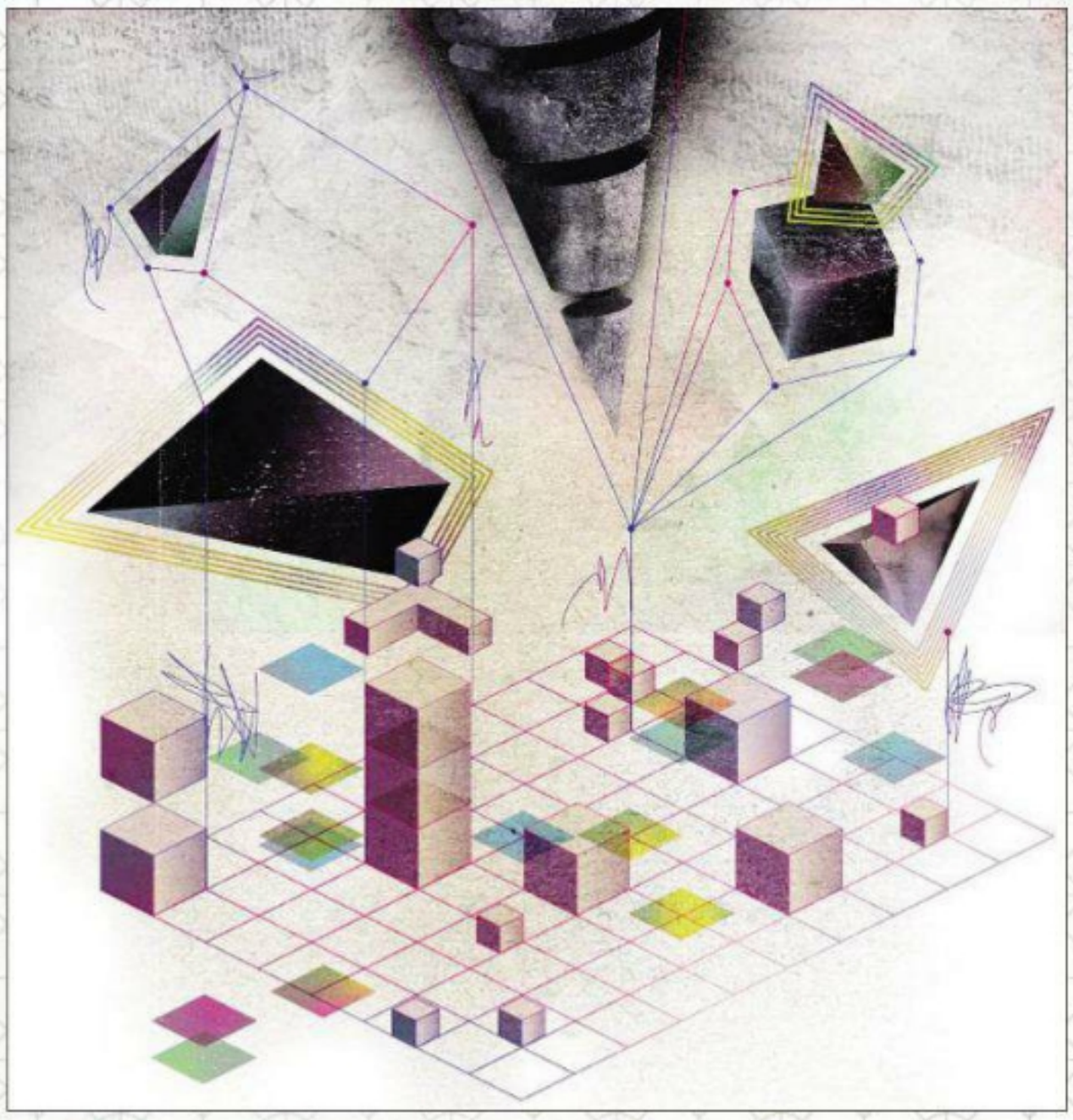


AFTER EFFECTS TOP 50

Whether compositing footage or integrating titles and effects, here's 50 pieces of essential After Effects advice...

1 Don't rely on post

When you're out on a shoot, don't ever say to yourself "we'll get this fixed in post" without knowing exactly how you plan to do so. It's much easier (and generally quite a bit cheaper) to get the shot right on set rather than rely on complicated post-production fixes that may or may not be possible – so if in doubt, don't say it!

2 Learn the shots

Save a lot of time compositing by learning and using After Effects shortcut keys. A lot of these mirror Photoshop, so if you're familiar with one then you're half way to learning the other. For example, the V key will select the Selection tool, Ctrl/Cmd+Y creates a new layer, M selects the mask tool, and T will open the opacity (transparency) properties of your layer ready for keyframing.

3 Better chroma backgrounds

When you're trying to use a chroma background to key out your subject and insert a new matte, noise and artifacts can make it more difficult to get an accurate key. As well as ensuring you've got good lighting on your chromo background, applying a slight blur before keying can improve your results considerably.

4 Simplify camera moves

For smooth camera moves without the headache, parent your camera to a null object and move the null object instead of the camera. As you move your null object around, the camera will follow, allowing for far greater control over rolls, zooms and pans without the usual headache associated with queuing up complex camera moves through a scene.

5 Wiggle expressions

Add camera shake to your project to create a sense of movement, impact or hand-held camera. You can do this easily by adding a wiggle expression to your camera, or to the null object controlling the camera. Alt/Opt+Click on the position property and add the following code to get started: wiggle(4, 100). This will shift the position of the camera by up to 100 pixels, four times a second.

6 Better depth of field

Create a sense of depth of field by using a black-to-white ramp to luma-matte a blurred version of your footage over distance. Duplicate your footage and apply your favoured blur. Next, add a solid layer and apply the Ramp effect, setting your start and end points to match the distance plane in your shot. Finally, set the blurred version of your footage to use the solid layer as a luma-matte, and you've got instant depth of field in your shot.

7 Motion Tile effect

A simple tip for creating a whip-pan transition effect is to apply the Motion Tile effect to both pieces of footage. Set the Output width and height to 300% and

position the footage layers so that they overlap by one full composition size. Parent the layers, and during your transition move the parent layer from -100% to +100% on the X axis, keyframing the opacity at the same time. Enable Motion Blur and preview to see a passable whip-pan transition.

8 3D TEXT WITHOUT PLUG-INS

There's a well-known work-around to create 3D text in After Effects using the Shatter plug-in, but you can arguably get a better result by using this approach. Create a text layer and pre-compose it. Make your layer 3D, then add an expression to the position property as follows: z = index; [value[0],value[1],z]; Duplicate your layer 50 times by pressing and holding Cmd/Ctrl+D, then pre-compose your whole composition. Collapse transformations, add a light and a camera, and you can rotate your camera position to view 3D text. This works well unless you go to a full 90 degree rotation.

9 Faster rendering

Speed up rendering time by creating proxy footage for your layers. Highlight a pre-comp that has a lot of processing happening and choose File>Create Proxy>Movie. Choose a file name and path, and then render the proxy. This proxy will prevent After Effects having to calculate all the animation in your pre-comp, speeding up your work and test renders in the process.

10 Explore blending modes

While most After Effects users are familiar with the Add blending mode, don't limit yourself to this – a whole range of unexpected effects can be achieved simply by switching the blending mode to one of the numerous alternatives. Multiply, Screen and Darken are three quite safe modes to start off with, but experiment! You never know, it might just be the effect that you were looking for.

11 Make use of folders

Organise your source material into folders to keep on top of your project, and save valuable time you'd otherwise use hunting for the right element. Arrange your footage by type by clicking on the Type column heading in the Project panel, then create folders by clicking on the Create a New Folder button at the bottom of the panel. Finally, drag footage into the folders to organise as you see fit. This takes seconds to do, but can save a lot of time when you've got 100+ bits of footage in a project.

12 Utilise the Tilde key

A great trick for viewing a panel in full screen is to tap the Tilde key (~) on your keyboard. On a PC this is located above the Tab key, while on a Mac it's to the left of the Z key. The panel your mouse is over will become full screen when you tap it, enabling you to get close to the action. To return to normal, simply tap the key a second time.

13 Reduce render time

Set your render region and work area to reduce render time and speed up renders. Move your playhead to the point you'd like to start rendering from and press the B (beginning) key. Move to the point you'd like to end rendering, and press the N (end) key. Now, when you do a render you'll only get that portion – ideal for rendering a proof, or where a full timeline render might take hours.

14 USING 32-BIT COLOUR

In standard 8-bit mode, After Effects will clip colours that reach a brightness of 100%, throwing away colour information and leaving you with flat, blown-out highlights. Switch to 32-bit mode by Alt/Opt+Clicking on the composition colour depth marker, and your highlights will be allowed to get brighter than 100% while retaining colour data – essential for great-looking blooms and glows. 32-bit colour also enables you to throw far more colour correction at a shot without losing source data, making it ideal for achieving a strong, filmic look in your projects.

15 Toggle Mask And Shape

If you're doing a lot of rotoscoping, mask outlines can quickly become a headache, interfering with your view of the footage and generally looking pretty messy. You can quickly hide masks by pressing the Toggle Mask And Shape visibility button. It's located in the Comp Preview panel between the timecode and guides buttons.

16 Pre-composing

Many of the most annoying problems you'll come across in After Effects can fixed by pre-composing the layer you're working on. Some effects only work on pre-comped layers, which others will render with unexpected results, or won't affect the correct layers. Pre-compose by right clicking on the layer in the Layer panel and choosing Pre-compose from the pop-up menu.

17 Exploit existing plug-ins

Don't rush out to buy plug-ins for After Effects before exploring what you can achieve with the ones the application ships with. CC Particle World, for example, is a surprisingly capable particle generator that will enable you to achieve a lot of effects you might think would require something a bit meatier. Only once you've explored the limits of what you've already got will you be ready to upgrade and take advantage of the additional features the likes of Trapcode Particular offer.

18 USE LAYER STYLES

Many After Effects users forget that Layer Styles are available. Similar to Photoshop, Layer Styles enable you to add a series of effects directly to a layer and have them rendered as live effects. You can also keyframe the style properties, making them ideal for quick, common effects such as drop shadows, inner shadows and stroke. Access Layer Styles by highlighting a layer in the Timeline panel and choosing Layer>Layer Styles, and pick from Drop Shadow, Inner Shadow, Outer Glow, Inner Glow, Bevel and Emboss, Satin, Color Overlay, Gradient Overlay or Stroke.

19 Convert keyframes

Create more natural-looking keyframed attributes by converting your keyframes from linear to ease. There are three pre-set options available: easy-ease-in, easy-ease-out or easy-ease. The latter gives you both an ease-in and ease-out. Highlight your keyframe and press F9 to quickly convert your keyframe to easy-ease. Shift+F9 will give you easy-ease-in, while Ctrl/Cmd+Shift+F9 will give you easy-ease-out.

20 Show all keyframes

Reveal all your keyframes on one or more layers, whether they're effects, transparency, position or rotation keyframes. Simply highlight one or more layers in the Layers panel, then press Ctrl/Cmd+U on your keyboard. After Effects will open all the properties that have keyframed attributes, ready for editing. This is a massive time-saver as compared to drilling down through countless disclosure triangles.

21 Use colour codes

Colour code your layers to visually group different elements together. Click on a layer, then click on the small colour chip next to the layer number. This will open a menu with lots of different colours. Pick the one you'd like, and your layer is now labelled with that colour. Visually group by type, purpose or effect and you'll find it much easier to identify layers.

22 Puppet tool

If you're using CS4 or above, make use of the Puppet tool to bring objects to life. You don't need to be using animate objects to be able to create a sense of character – a fork, phone or newspaper can all be given a sense of life with this fantastic tool.

23 Labels and markers

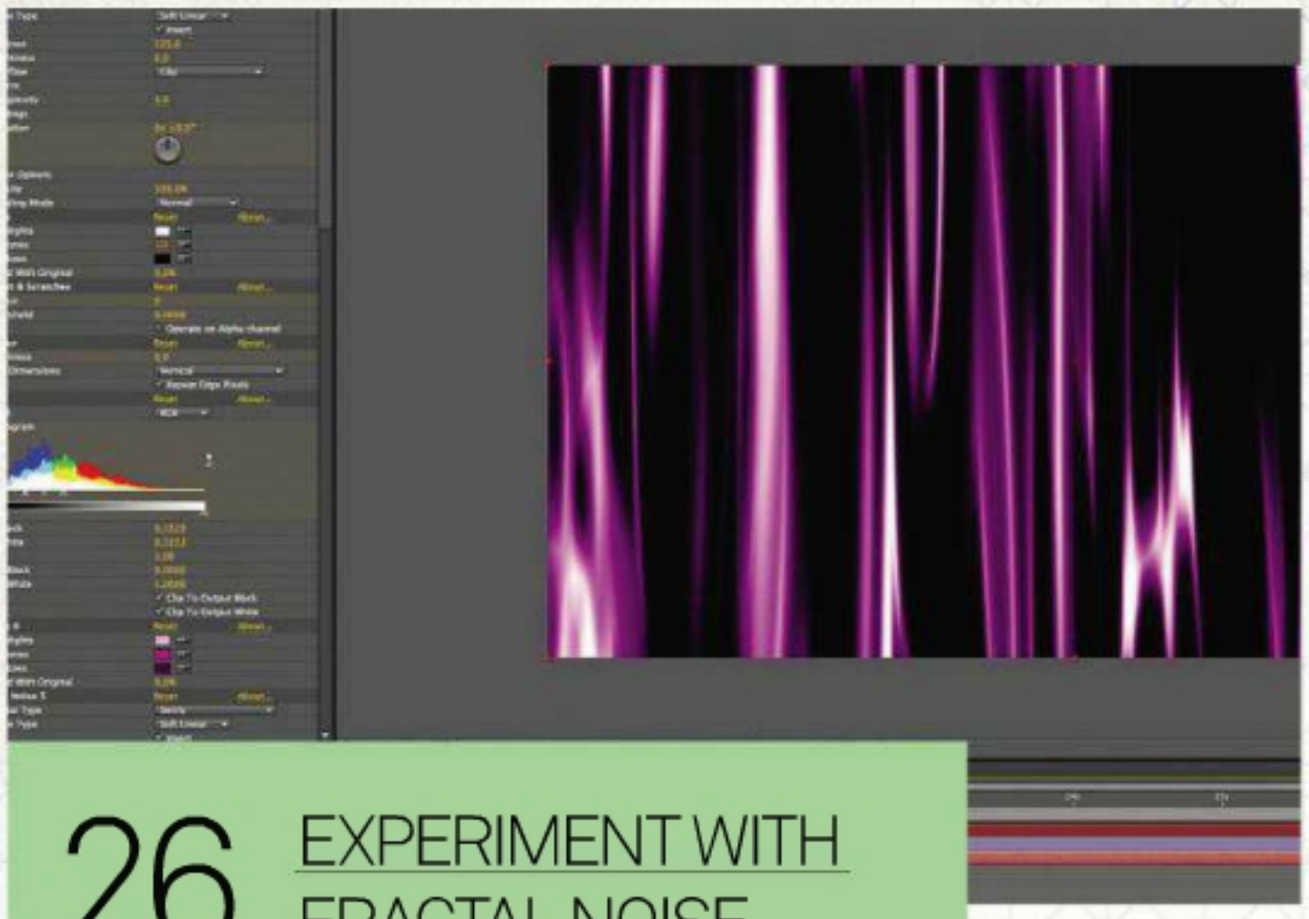
Create markers on your timeline to help identify timing or cue points by holding down Shift and pressing a number between zero and nine on your keyboard. This will create a small label and marker arrow. Right click on the marker and choose Settings to add more extensive notes and set cue points for export to Flash.

24 Apply corrections

Colour correct per layer, then do an overall colour correction on your finished composition. If individual layers have tonal or contrast issues then it makes sense to fix these local problems directly on the layer. But to achieve an overall colour signature, add an adjustment layer at the top of your composition and apply global corrections as the last thing you do.

25 Guide layers

If you'd like to be able to see or hear a layer in your timeline, but not have it render out, you can set the layer to be a guide. This will prevent it from rendering out, but will leave it available for reference in your composition. Simply highlight the layer and choose Layer>Guide Layer to make the change.



26 EXPERIMENT WITH FRACTAL NOISE

Fractal Noise is easily one of the best effects for creating movement in your compositions. There are an infinite number of possibilities, but to get a feel for some of them choose Animation>Browse Presets and look at the Backgrounds folder. Every effect in this preset folder has been created using Fractal Noise with some combination of settings for Fractal Type, Noise Type and complexity. Animate over time using Evolution, and stack other effects on top to create amazing organic motion in your composition.

27 Retiming keyframes

You can retime a whole set of keyframes by selecting them all, holding down the Alt/Opt key on your keyboard, and dragging either the first or last keyframe in your selection. Drag out to extend the space between each keyframe, or in to condense the keyframes accordion-style.

28 Swap footage

Quickly replace the source footage of a layer by highlighting it, and Alt/Opt+dragging new footage onto the highlighted layer. This will swap out your new footage for the existing footage, retaining all keyframes, effects and characteristics you've applied to the layer in question. This is also very useful when combined with Ctrl/Cmd+D to duplicate a layer - you can quickly style layers to be treated identically by duplicating, then replacing the source footage.

29 Layer name vs. source name

Rename your layers by selecting them, and pressing Return on your keyboard. You can give a layer any name you like. After Effects enables you to toggle between the layer name and source name - to do this, just click on the column title in the Layers panel and After Effects will switch to showing either the layer or source name. Click again to swap back.

30 Colour correct with curves

One of the most powerful colour correction tools available in After Effects is the humble Curves effect, found under Effect>Color Correction>Curves. This enables you to pull a graph of input versus output at specific points for each colour channel, making it easy to introduce colour casts, add more or less of one colour, and improve contrast all at once.

31 Collapse Transformations

To retain the 3D position of elements inside a pre-comp, click the Collapse Transformations button for that layer in the Layers panel. This button is the same as the Continuously Rasterize button, which you can use to ensure vector artwork imported as footage remains sharp at all scales.

32 Create reference points

If you know in advance you're going to be doing some motion tracking on a shot, make life easier by adding some high contrast crosses to your scene before filming it. Narrow black gaffer tape in a cross shape against a lighter colour provides an ideal point of reference for motion tracking, and will save you a lot of headaches in post. Make sure you set up at least three points at minimum. →

33 CREATIVE TEXT WITH THE SET-MATTE FILTER

Create a 32-bit composition and add some text. Add a solid above your text layer then add the Fractal Noise effect. Turn up the contrast and turn down the brightness. Animate the Evolution property over time by using an expression such as time*90 (which will give you one complete evolution every four seconds. Add the Set Matte effect to the solid layer (Effect > Channel > Set Matte) and choose your text layer as the source layer. Add a vertical fast blur, glow and levels, and colour correct to create some amazing evolving effects.

34 ANIMATE CORPORATE GRAPHICS WITH EASE

It's easy to animate corporate graphics inside After Effects, including generating the likes of bar and pie charts using expressions. Start off with a solid and use either the Circle effect, or draw a circular mask. Add the Clock Transition effect, and set the completion to match your first pie slice value. Duplicate the layer, set the start angle to match the end angle of the first slice using an expression that grabs the start angle of the previous slice, and the completion of the first slice as a fraction of 360 degrees. Continue with additional slices until your pie is complete. You can now animate the slices into position, by wipe and of course add fake 3D effects as necessary.

35 Take advantage of presets

Don't overlook the animation presets that ship with After Effects – these can often be the basis for an entire piece, or at least solve a problem with finding a suitable background for a composition. To browse the presets available choose Animation>Browse Presets... From Within After Effects. Bridge will then launch with a series of folders containing a myriad effects for you to choose from.

36 Find keyframe-ready effects

Save time on manually creating transitions between clips by taking advantage of the transition animation presets. Open the Effects and Presets panel, then open the disclosure arrow next to Animation Presets. Under the Presets folder, a folder called Transitions contains a number of keyframe-ready effects for you to drag onto your footage.

37 Layer in/ layer out

Another couple of shortcut keys that will save you a lot of time are the Layer In and Layer Out keyboard shortcuts. These enable you to set the point at which the layer begins on the timeline, and the point at which it ends respectively – much quicker than dragging from one end of the layer timeline to the in or out point. You can also jump to the in and out points on a layer by using shortcut keys I and O respectively.

38 Motion Sketch panel

Create a sense of organic movement by using the Motion Sketch panel to record yourself moving a layer around. Open the panel by choosing Window>Motion Sketch. Click capture, then move the layer around using the Selection tool. After Effects will automatically create a motion path for you once you release your mouse button.

39 Navigate with Go To Time

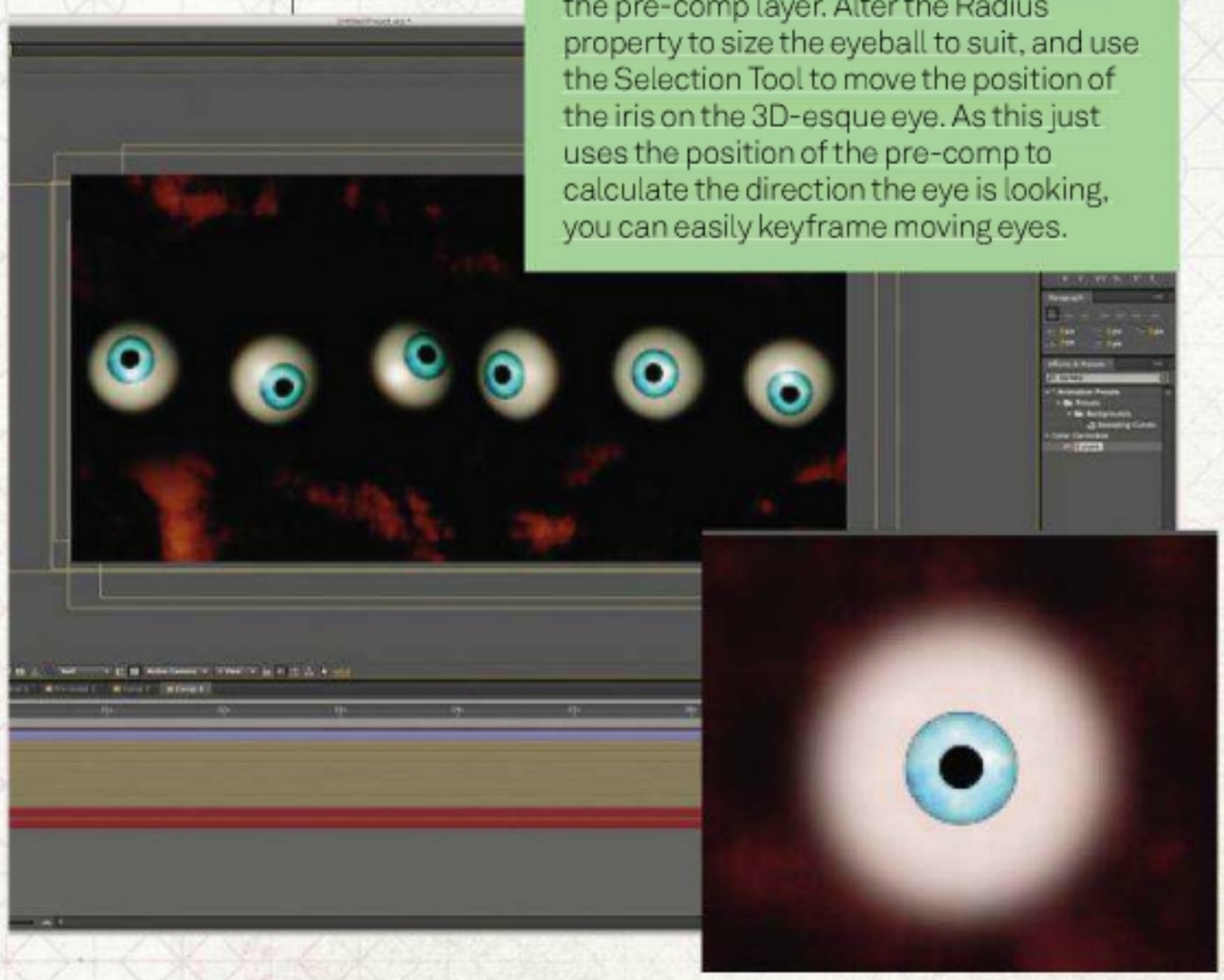
Quickly navigate your way to a specific spot on the timeline by using Go To Time, found under the View menu (or use the shortcut key combination Alt/Opt+Shift+J). This dialog box enables you to enter the precise number of seconds and frames you'd like to jump to, but also supports entries such as +9 to move nine frames on from your current playhead position.

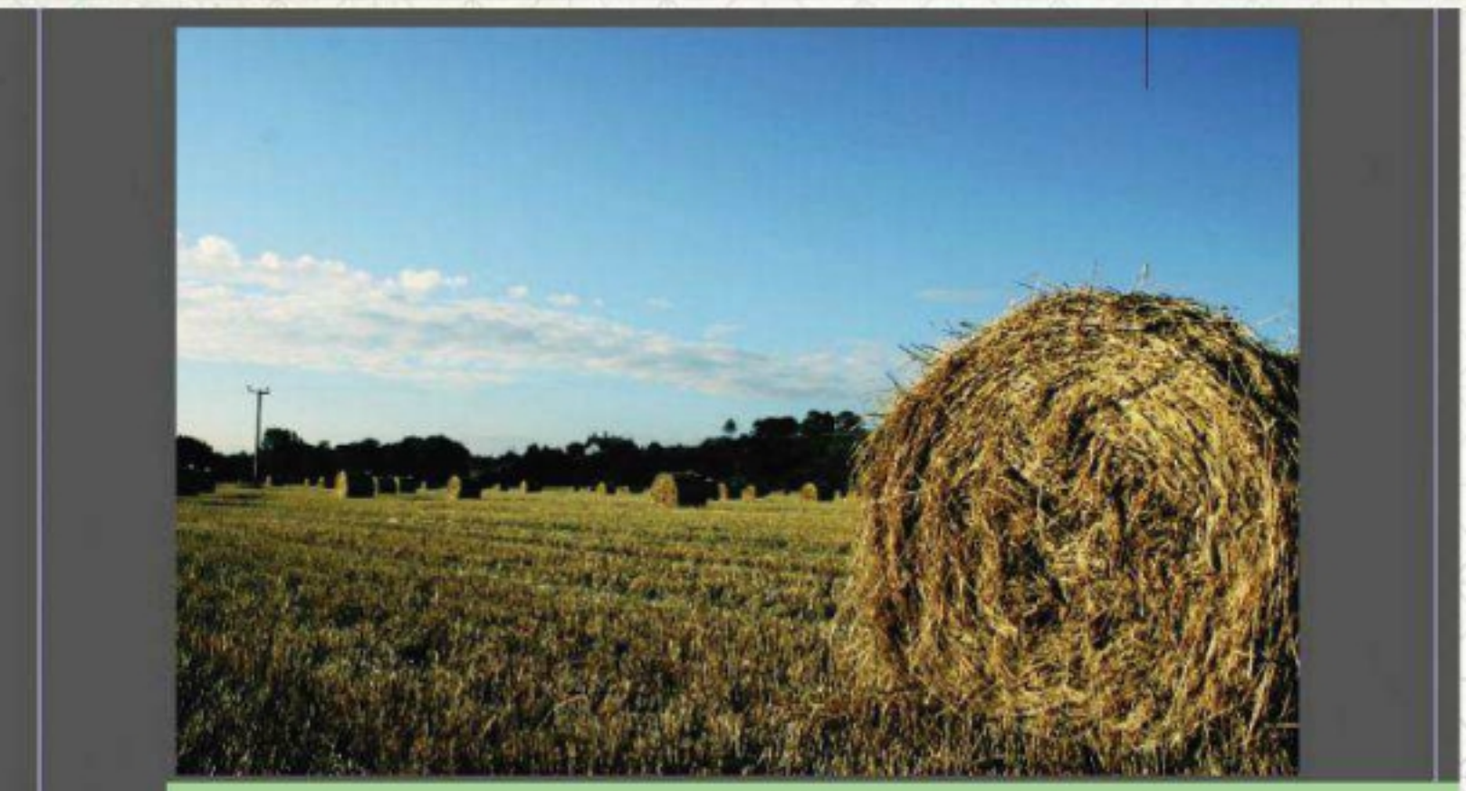
40 Add a camera

If you've got elements arranged in 3D space and want to achieve a depth of field effect, or animate the point of view inside that 3D space, you can only do so by adding a camera to your composition. Choose Layer>New>Camera, and make sure you remember to tick the Enable Depth Of Field checkbox. Then change the properties of your camera to alter the DOF and bokeh generated.

41 ANIMATE EYES EASILY

Create a 2:1 composition and draw a flattened eyeball using solids, masks and fractal noise for texture. Pre-compose the layers and apply the CC Sphere effect to the pre-comp layer. Alter the Radius property to size the eyeball to suit, and use the Selection Tool to move the position of the iris on the 3D-esque eye. As this just uses the position of the pre-comp to calculate the direction the eye is looking, you can easily keyframe moving eyes.





42 CREATE A QUICK AND EASY SLIDESHOW

Create a new composition 5 seconds long, and drag all your images into your timeline. Add a fast blur effect to the top photo, and animate it from a blurriness of 25 to a blurriness of 0 over 1 second. Scale the layer from 100% to 120% over the course of five seconds, then press U twice to reveal all your keyframed properties. Highlight each, holding down Ctrl/Cmd to select multiple properties, then Copy and Paste these to each layer. Finally, select all your layers and choose Animation>Keyframe Assistant>Sequence Layers. Choose an overlap of 15 frames, and dissolve front. Change your composition settings to make the comp long enough for every layer to show, and you're done!

43 Improve motion blurs

Get a more aesthetically pleasing motion blur by altering the Motion Blur Shutter Angle. You can access this setting by choosing Composition>Composition Settings, and then clicking on the Advanced tab. You can set the Shutter Angle and Phase values, as well as the number of samples per frame to achieve the look you desire.

44 Save time with Draft 3D

Speed up rendering of complicated 3D scenes by clicking the Draft 3D button (a little 3D cube with a star to the left) at the top of the Timeline panel. This will temporarily disable shading, shadows and depth of field, enabling After Effects to render your work area more quickly. While you wouldn't want to render your final composition in this way, it can help to get a feel for a camera move without the render delay.

45 Brainstorm for treatment

Use the brainstorm button in more recent versions of After Effects to see a range of nine different treatments for your layer properties. First, make sure you have some keyframes on your layer or an effect applied, then click the Brainstorm button at the top of the Timeline panel to automatically generate random possibilities. Click Brainstorm once again to refresh the options.

46 Create rolling credits

A quick way to create a nice rolling credits effect is to lay out your long list of credits inside Illustrator. Once you've got your Illustrator document, import it as footage into After Effects and drag it onto the timeline. Finally, animate the position over time using an expression to set the Y position based on time. Experiment with an expression such as:

```
x = value[0];
y = 800+(time*-10);
[x,y];
```

47 Organise animation presets

Save your own Animation Presets for quick retrieval later on by adding effects, keyframes and properties to a layer, selecting the layer, then choosing Animation>Save Animation Preset. After Effects will ask you to choose a folder and name. Click Save and your preset will be ready and waiting the next time you need the same effect.

48 Puppet Warp pins

Automatically record animation of Puppet Warp pins by holding down Ctrl/Cmd as you drag them. This works in a similar way to Motion Sketch – the timeline moves on as you drag, and After Effects automatically converts your mouse movement to a motion path. You can go back in the timeline and repeat the process for each pin, creating organic movement for your puppet object.

49 Exploit 3D null objects

Make an object or property with a 2D position act like it has a 3D position by creating a 3D null object, and creating an expression for the object with the 2D position. Pick whip the null object to assign the null's position as the value for the 2D object's position, and add .toComp([0,0,0]) to the end of the generated expression. This works really well for 3D scenes where you want to animate a lens flare to look like it's responding to a light source in 3D space, and although it's not really 3D it looks as if it is.

50 Using Google Earth

You can create an extremely passable "falling to earth" animation by grabbing stills from Google Earth at various magifications, and super-imposing each still onto the previous one so that they seamlessly blend – aim for at least seven images from close up to far out from the ground. Pre-compose your layers, then scale the whole composition over time so that you move into the areas of progressive detail, and add fake clouds using Fractal Noise set to use the screen blending mode. Finally, add a wiggle expression to the pre-comp rotation to create camera shake.

Any version of After Effects

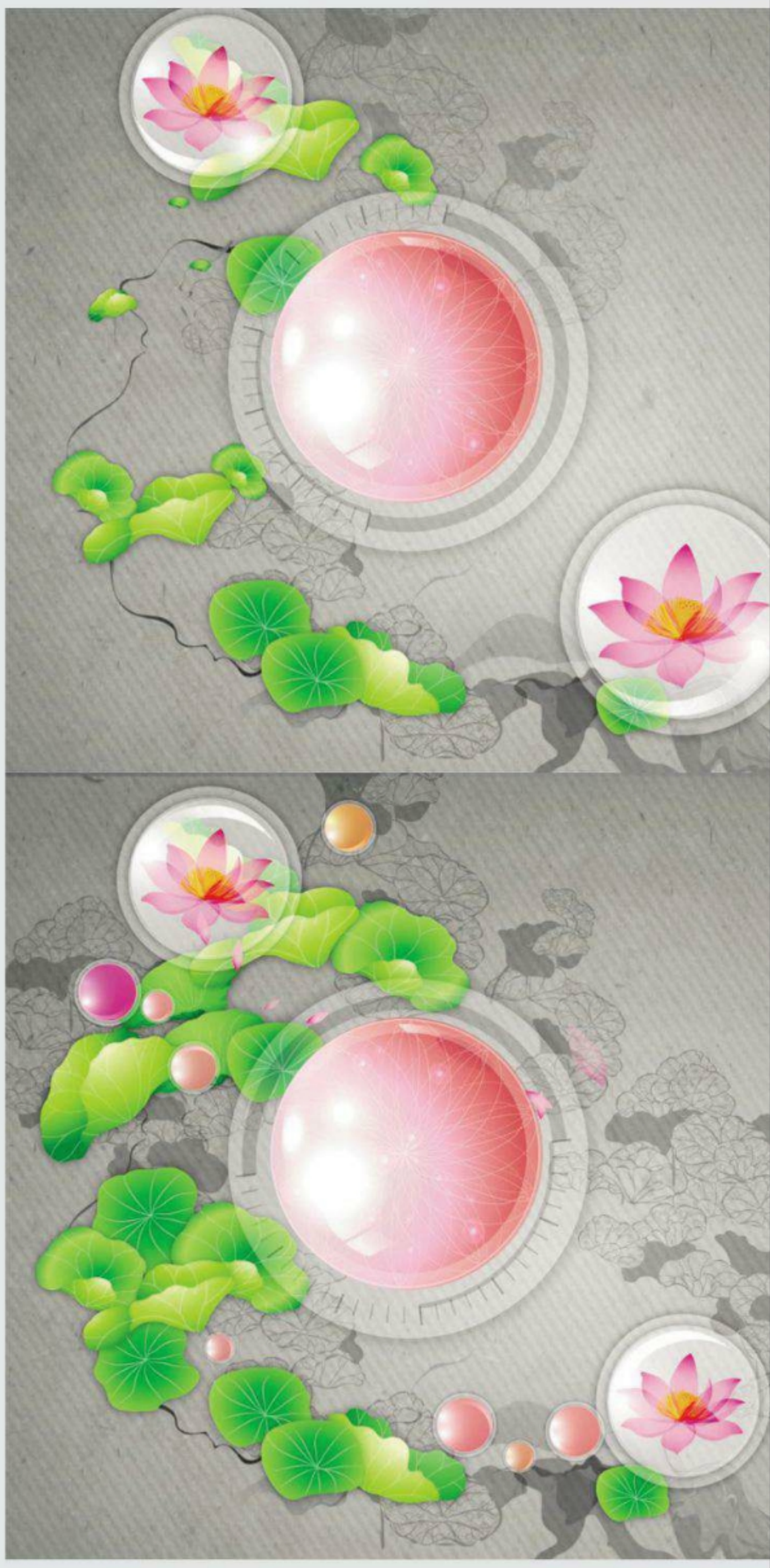
Animate using expressions

Jing Zhang reveals how to manipulate layer properties and effects to dramatically improve your workflow

For any company with lots of employees, a good manager is essential to keep everything in check. But just as strong management is important in business, it's equally valuable in After Effects – if your project has a well-planned structure, it'll remarkably improve your efficiency.

Dozens of layers with hundreds of keyframes are a real pain. Knowing how to use and control your expressions will help speed up your workflow, especially when you need to animate an organic, spontaneous motion scene. In this tutorial I'll explain how to manage your layers with expressions, and save time.

For further information, check out these online resources: MotionScript (www.motionscript.com), JJ Gifford's Expressions in AE pages (www.jjgifford.com/expressions), and Mograph Wiki (www.mographwiki.net/After_Effects_expressions_library).

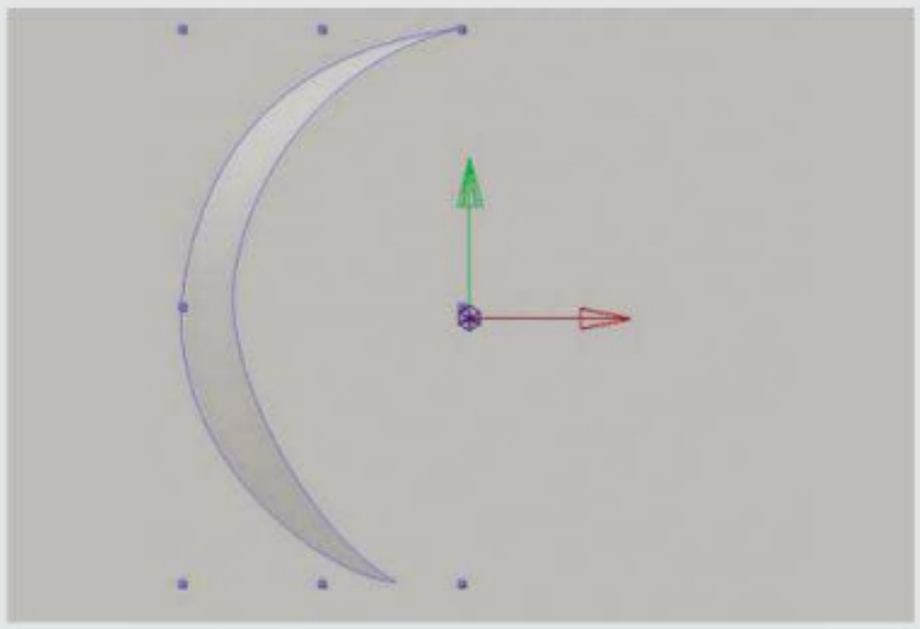


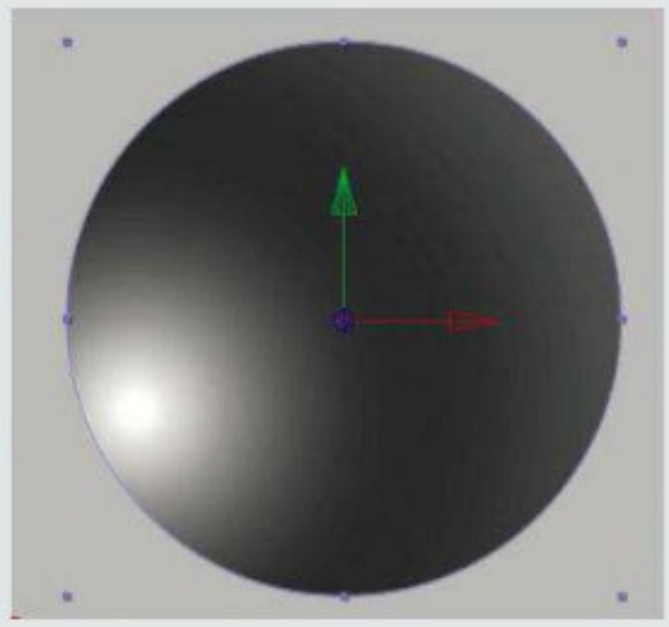
Jing Zhang
London-based Jing is a creative designer and self-proclaimed "code wannabe", with clients including 3 Mobile, Ford, Osiris Shoes and *The Lonely Planet*. Her work involves design, animation and lots of ActionScript.
www.mazakii.com

On the disc
The files relating to this tutorial can be located on the disc in DiscContents\Resources\After Effects

Time needed
2-3 hours (not including rendering)

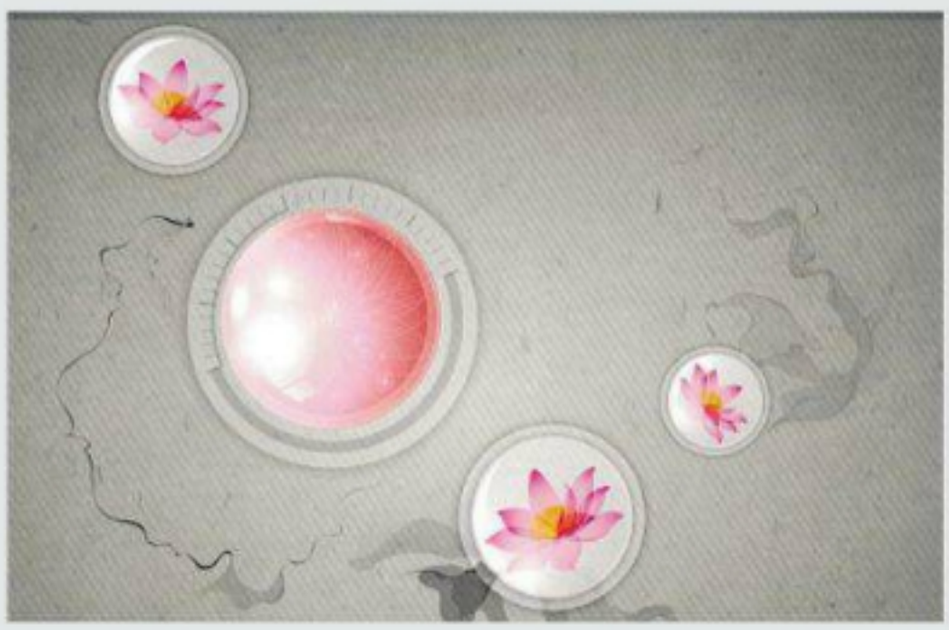
Skills
- Animate without keyframing
- Use one master layer to control your animations
- Preview with time-saving pre-render





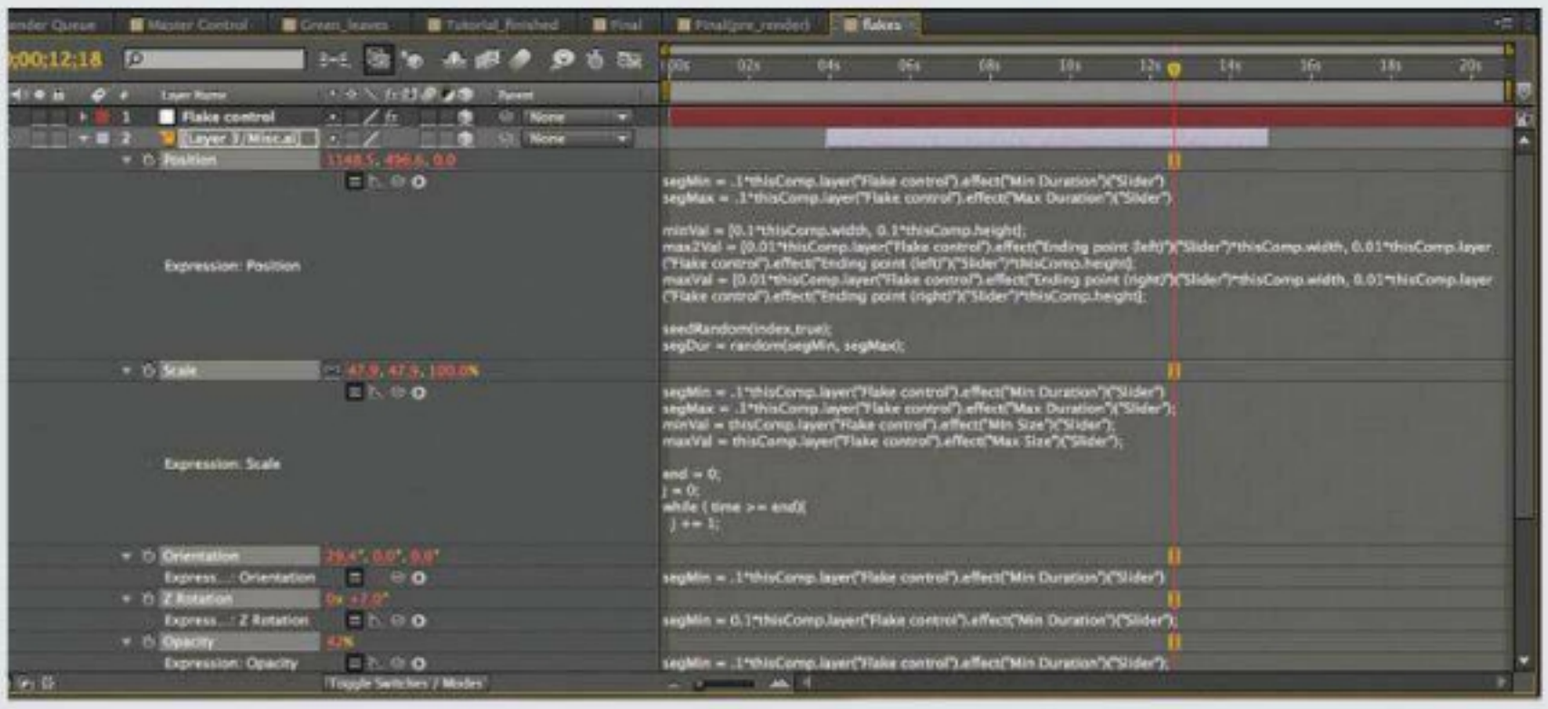
01—— Copy the disc folder onto your computer and open 'main.aep'. Now create a new After Effects composition at 758x642 pixels, and name it 'Circle Lotus'. Drag 'circle white only' from the Tutorial folder in the Project Panel to the middle of the Circle Lotus stage, and create two highlight shape layers that look like the images above, by going to Layer>New>Shape Layer. Next, play with their blending modes to make them look shiny. Go to the bottom bar and hit the Toggle Switches/Modes button. Create two black and white layers for lighting. The top one should be a highlight shape, with its blending mode set to Add. The lower layer should be the same, but filled with a black and white Radial Gradient. Set its blending mode to Overlay.

02—— Next, we can make Circle Lotus spin by animating the Z Rotation property. Alt/Opt+click on the stopwatch symbol next to Z Rotation. In the Expression box, enter the code: 'loopOut(type = "cycle", numKeyframes = 0)' to make it loop. Open 'lotus' from the Tutorial folder. Enable Time Remapping (Ctrl/Cmd+Alt/Opt+T), and apply the same script as above.

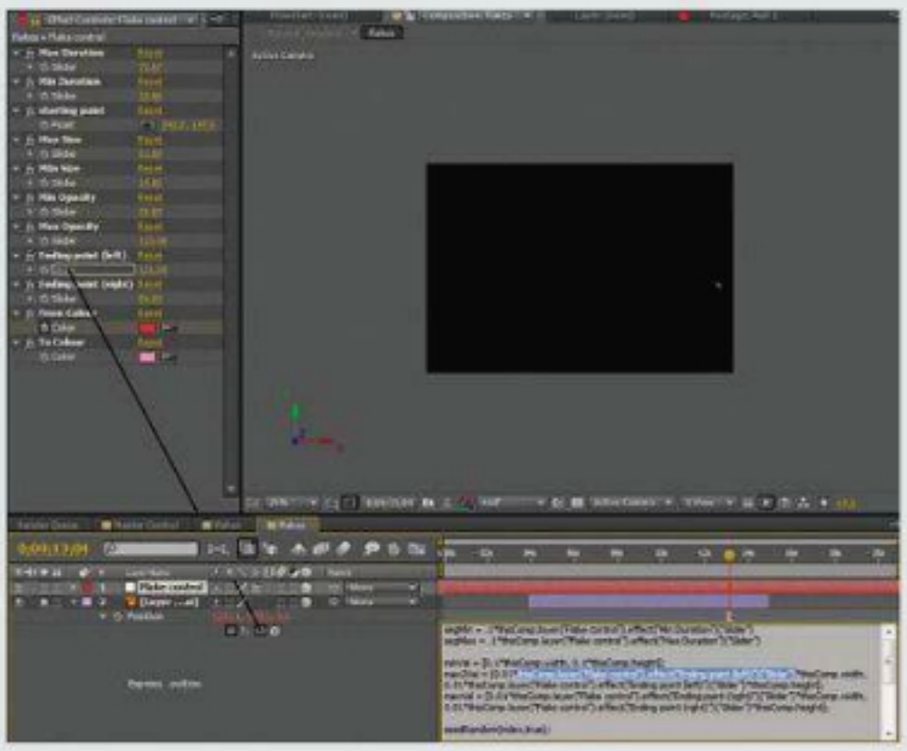


03—— Open 'base' from the Tutorial folder. It's now time to create some flakes falling from the top lotus using the Expression function in After Effects. We need to plan which attributes are to be animated: in this case they'll be Scale, Position, Orientation, Z Rotation and Opacity. For the duration of each flake, let's say between one to seven seconds. It's a good idea to make a record of this in your notepad.

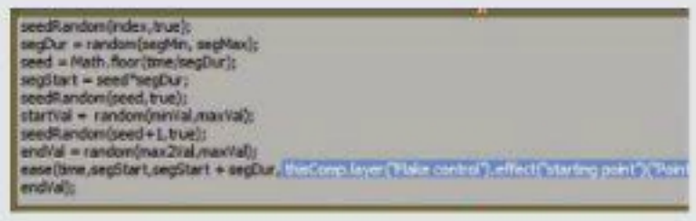
04—— Now go to the Tutorial folder and open 'flakes'. Create a Null Object (Layer>New>Null Object) and name it 'Flake Control' – this will be the master control of this comp. We're going to apply Slider Control and Point Control from the Effects & Presets window to Flake Control lots of times. Then we'll rename and adjust the slider controls, and set values as in the image above. →



05 Enable the flake layer's 3D property. Copy the random motion script (found on your disc) accordingly to the layer's Position, Scale, Orientation, Z Rotation and Opacity expression box. Now you can glide through the timeline to test the animation. You can always customise your animation by changing the random motion script.



07 You can also randomise the value using 'seedRandom()' method. Here, I've used two sliders – Ending point (left) and Ending point (right) – to manipulate the randomisation range of the ending position. When editing your script, you should always lock the control layer's Effect panel so you can let the Pick Whip write it for you.

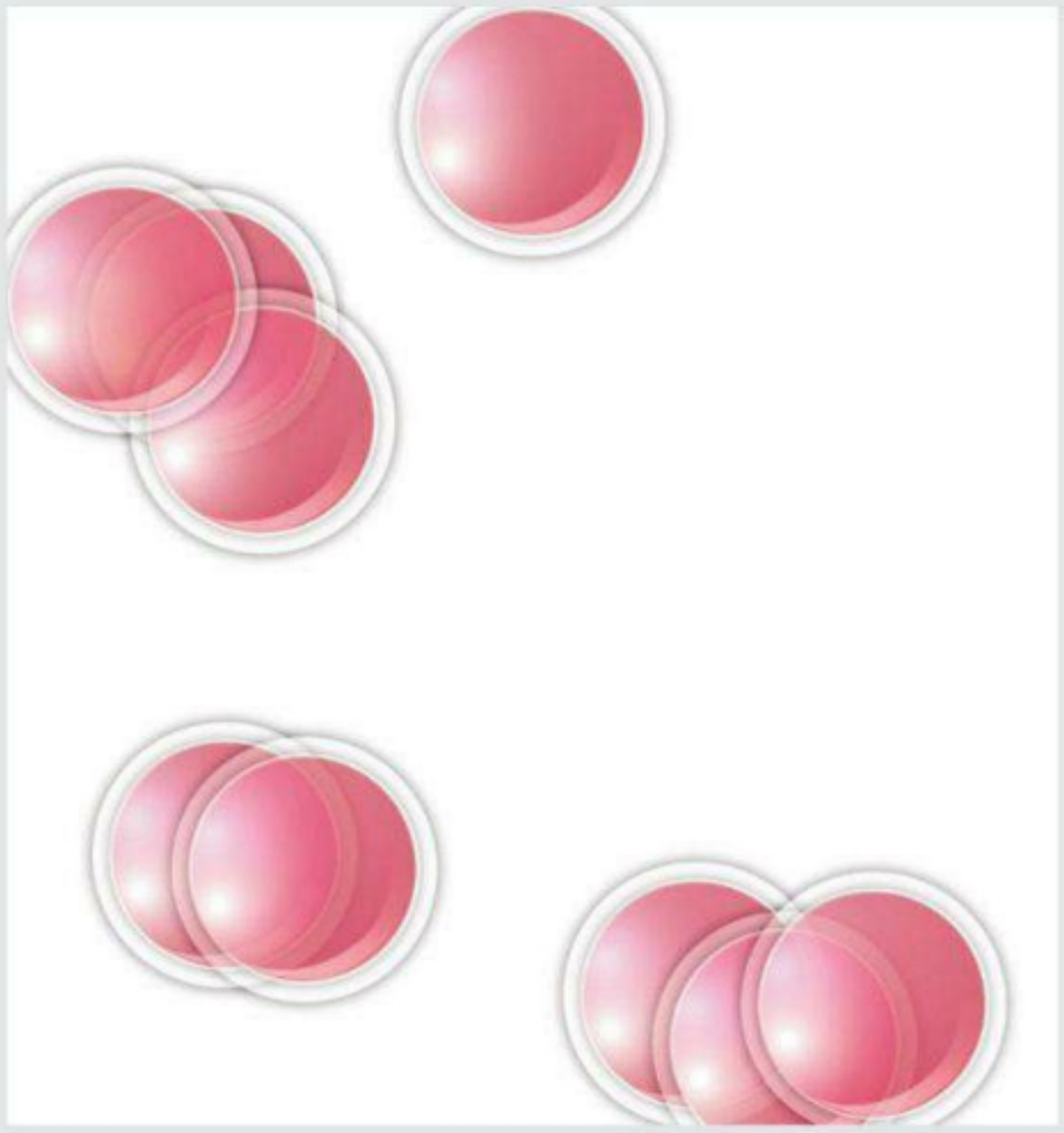


06 In the Position expression, this line: thisComp.layer("Flake control"). effect("starting point")("Point") in the ease() interpolation method tells you that the flake's starting position is controlled by a point control called Starting Point in the null object. This can come in handy if you – or a client – want to make lots of changes.

08 Check to make sure you've finished scripting. If you have, you can go on duplicating the layers many times (hit Ctrl/Cmd+D to duplicate), and all animations will be conditionally randomised. Manually drag the layer bar along so they'll start at different times.

09 We need a Master Control comp to manage your motion script without the hassle of changing all of them (Composition> New composition, and rename it as 'Master Control'). Then create a Null Object in the same way as you did earlier. Apply Expression controls to the null object, depending on your requirements.

10 Open the Coloured Circle comp in the Tutorial folder. On Shape Layer 4, paste the appropriate script from your disc under its attribute colour. Set the value of From Colour to red and To Colour to pink on Null 2 from the Master Control. If you're writing your own script, the value returned from Colour Control needs to be multiplied by 255 before it can be used for RGBA.

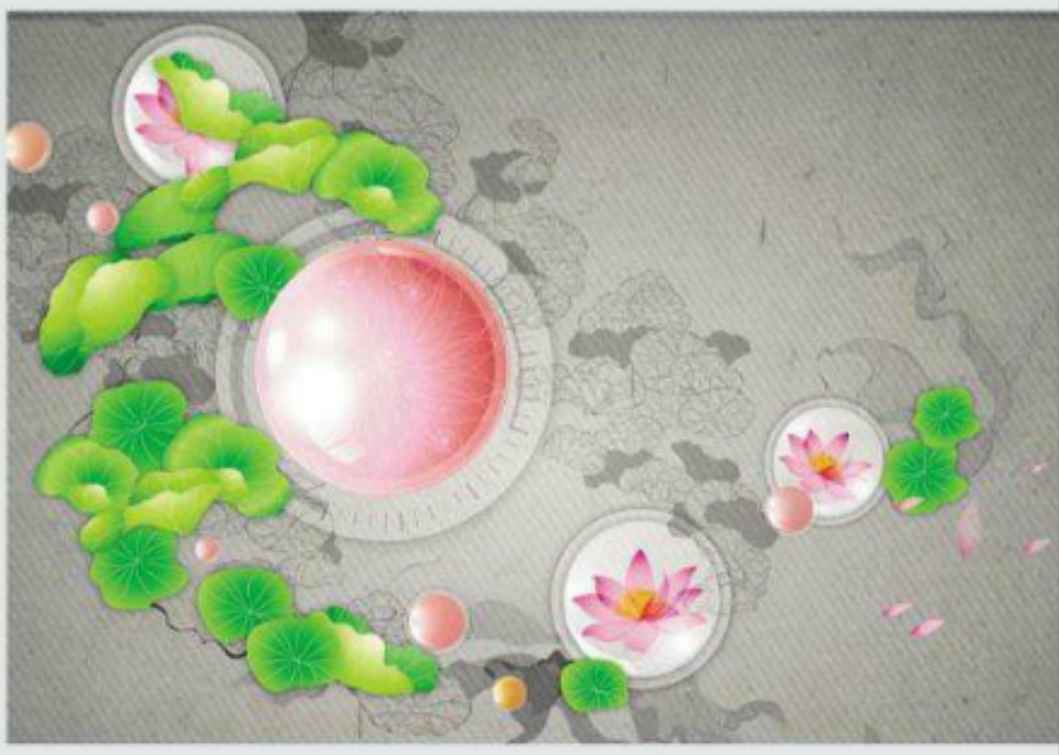


11 Next, open 'circles' from the Tutorial file. Here you can see 'Coloured Circle' duplicated 10 times. All the comps look exactly the same, although random colour script has been applied to them because expressions can't be stored in memory and randomisation can't transfer across hierarchy. Therefore, random motion script requires all layers to remain in one comp.

12 Theoretically, colour random script should be applied under the Coloured Circle comp. However, we only want a small part of our comp to be coloured, not the whole thing. So, instead of applying the colour random script to the whole Coloured Circle comp, let's apply Enable Time Remap and randomise its remapping to get the message across to each child comp.

13 The sliders in Master Control also enable us to animate the scale range of the bubbles through the timeline simply by clicking the stopwatch – so we can make all of them diminish at some point. At 0:00:09:26, click on the stopwatch of Min Circle Size and Max Circle Size, glide the indicator to 0:00:10:15 and then change both values to 0.

14 Open 'Green_leaves' from the Tutorial folder. First, animate the scale of the leaves in a batch: hit Ctrl/Cmd+A to select everything, press S to bring up the Scale property, and then adjust the number. Now we'll use the Sequence Layers function to set a time order for their appearance. To do this, select all the layers and go to Animation>Keyframe Assistant>Sequence Layers, tick the Overlap box, and put in a value slightly shorter than the whole comp. Use a linear (time, tMin, tMin+duration, value1, value2) interpolation method to control the fading in animation, and manipulate the duration through slider control.



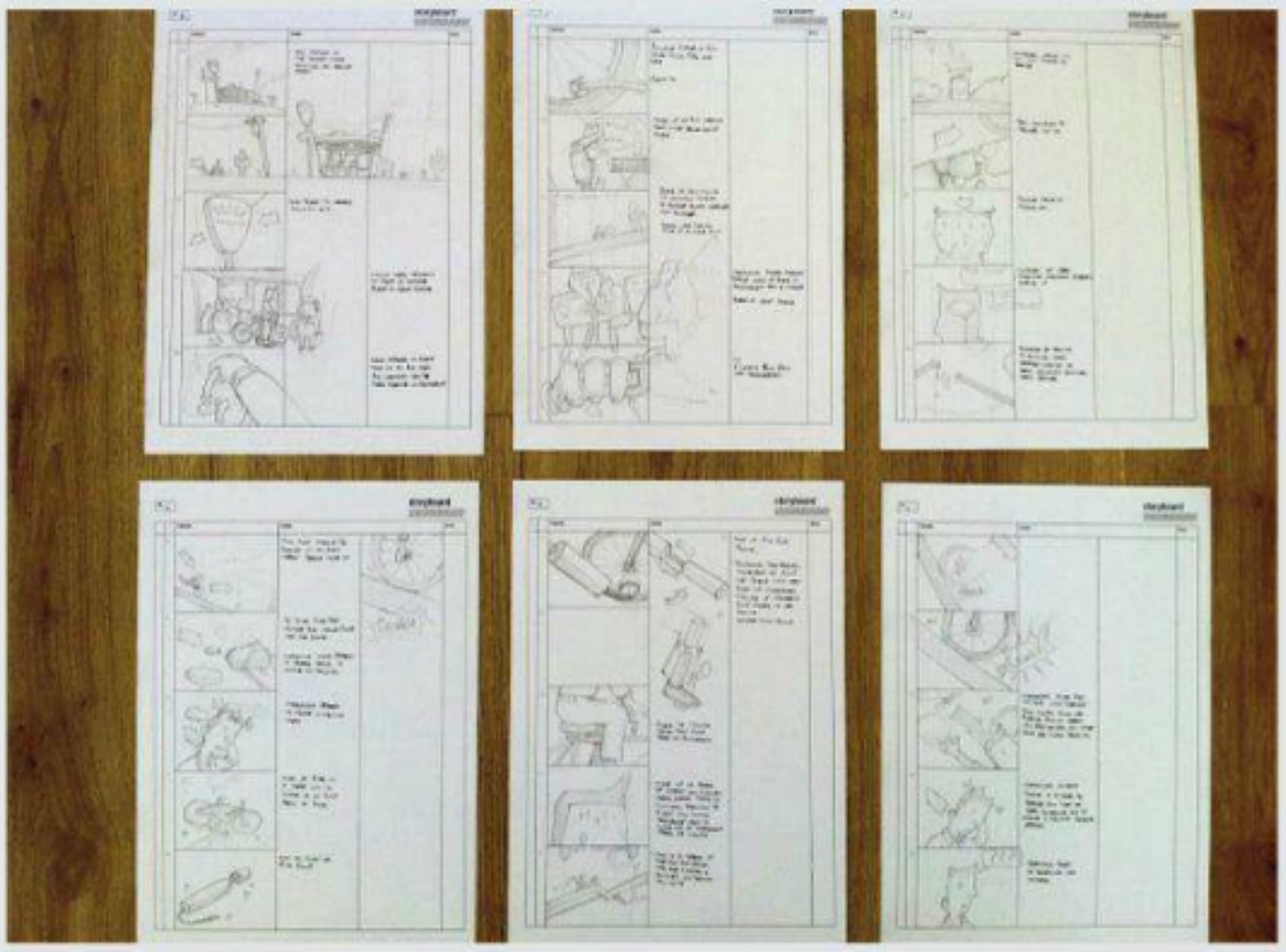
15 Now finish the animation by putting all the comps together. If you have an ending scene, the quickest way to make everything leave the stage is to use a camera, providing they all have 3D attributes. To do this, Right/Ctrl-click on Layer>Create New Camera, and click OK. Hit C twice, then pan around the scene, as though you're recording a film. You might find it isn't easy to glide through the timeline due to the amount of layers, comps and expressions. For a fast preview and render, pre-render an RGB+alpha .mov file for each of the 'heavy' comps. All finished comps can be found in Comp folder in the Projects panel.

After Effects, Photoshop and Illustrator CS4 or later

Animate a character in After Effects

Stuart Preece explains how to breathe life into your character designs using After Effects' built-in features

From setting up and controlling facial expressions to manipulating depth of field, After Effects can be a very powerful tool for animating characters. Here, I'll demonstrate my usual workflow using a simple character that I created for an animated short – covering all the steps that enabled me to produce the job efficiently, while retaining my initial vision for the design.

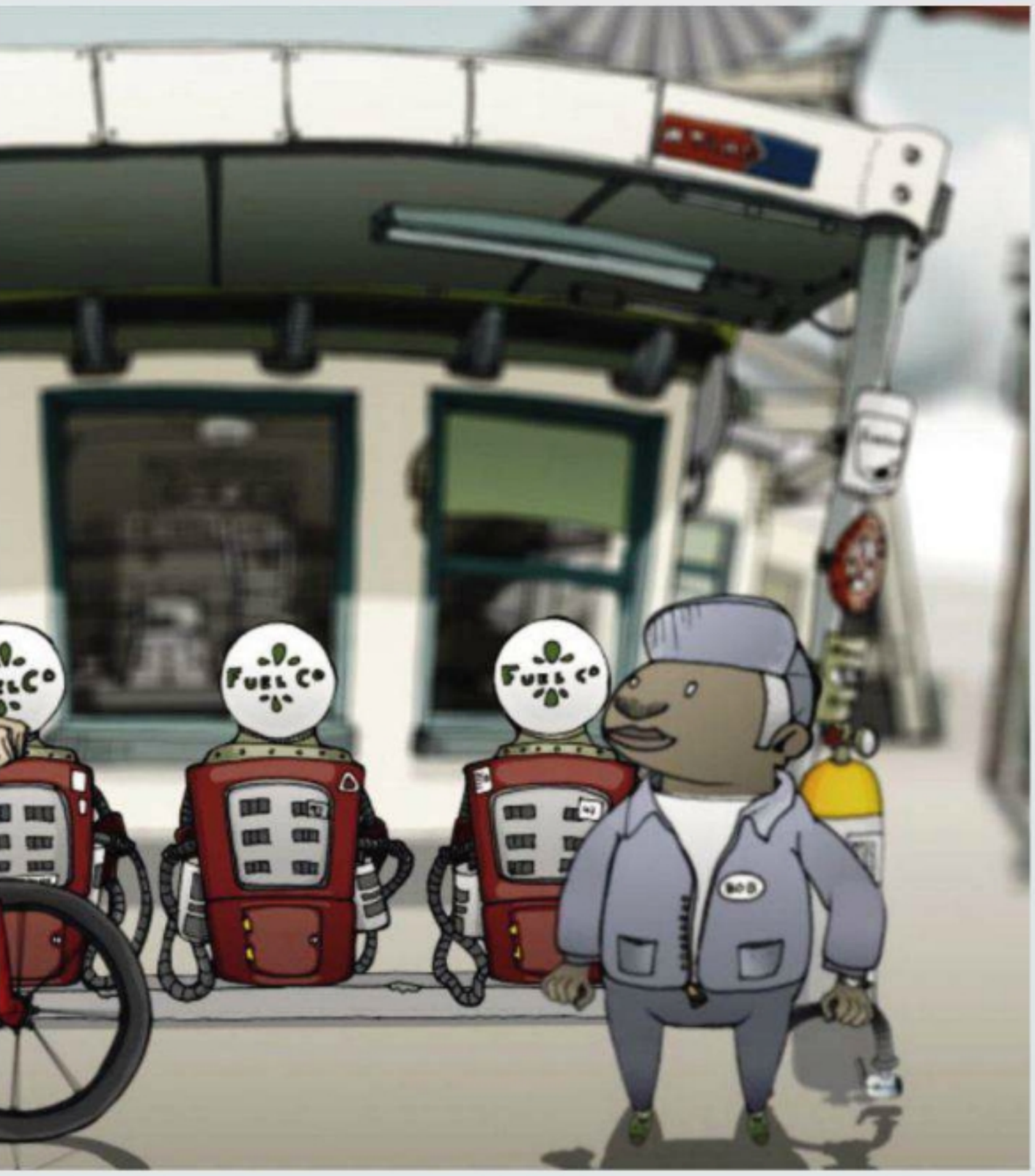


Stuart Preece
Having previously worked at Code Computerlove and Love Creative, Stuart recently branched out on his own under the name Digital Cavalier. He specialises in digital design, interactive media and illustration. See more at www.digitalcavalier.co.uk

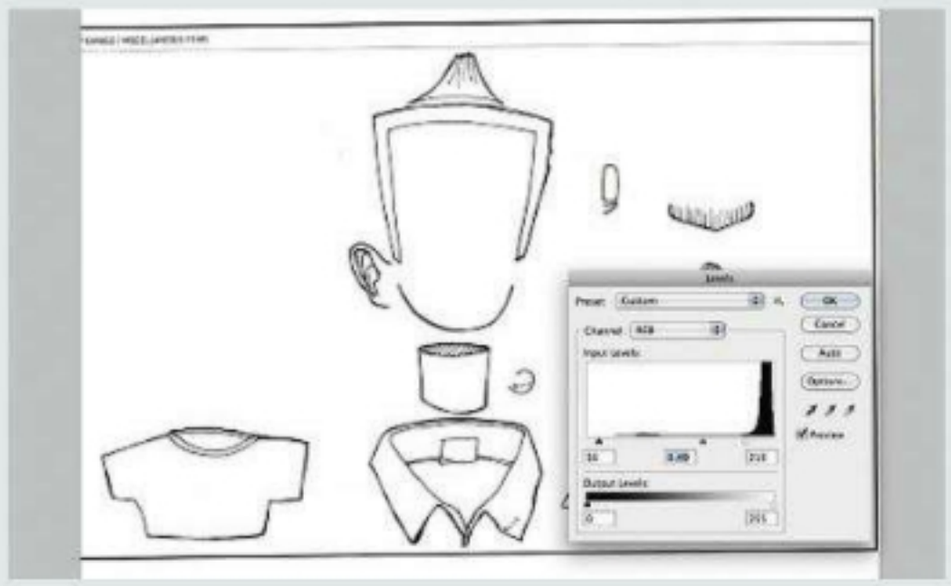
Time needed
5-6 hours

Skills
- Storyboarding and timing
- Taking sketches into Illustrator and Photoshop
- Setting up character design for animation

01 An often overlooked step in the process of producing an animation is that of storyboarding. I often work through ideas and timings at this stage to decide how the animation should flow. Working out your ideas at this point is critical – knowing where you need to go with your project makes the whole process more efficient, rather than wasting time later with no clear plan of action.

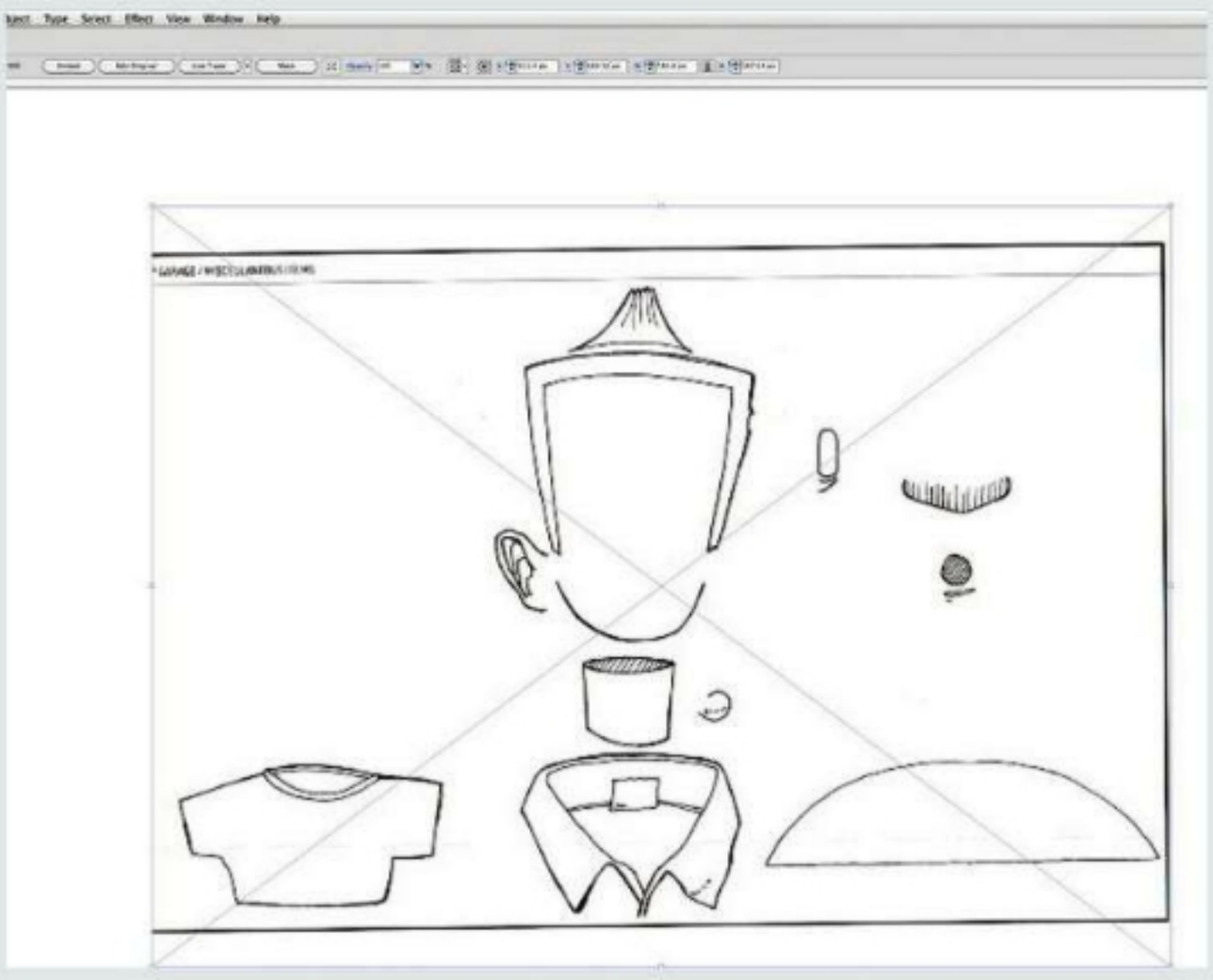


03—— At the initial stage I often find it easier to hand-draw elements in pencil. Scanning in the pencil sketch and then tracing over in ink solves a number of issues: you can get your idea working much quicker in pencil rather than diving straight in with pen; and tracing over the pencil with ink creates a much sharper image that can be live-traced more accurately with fewer graphical artefacts cropping up.



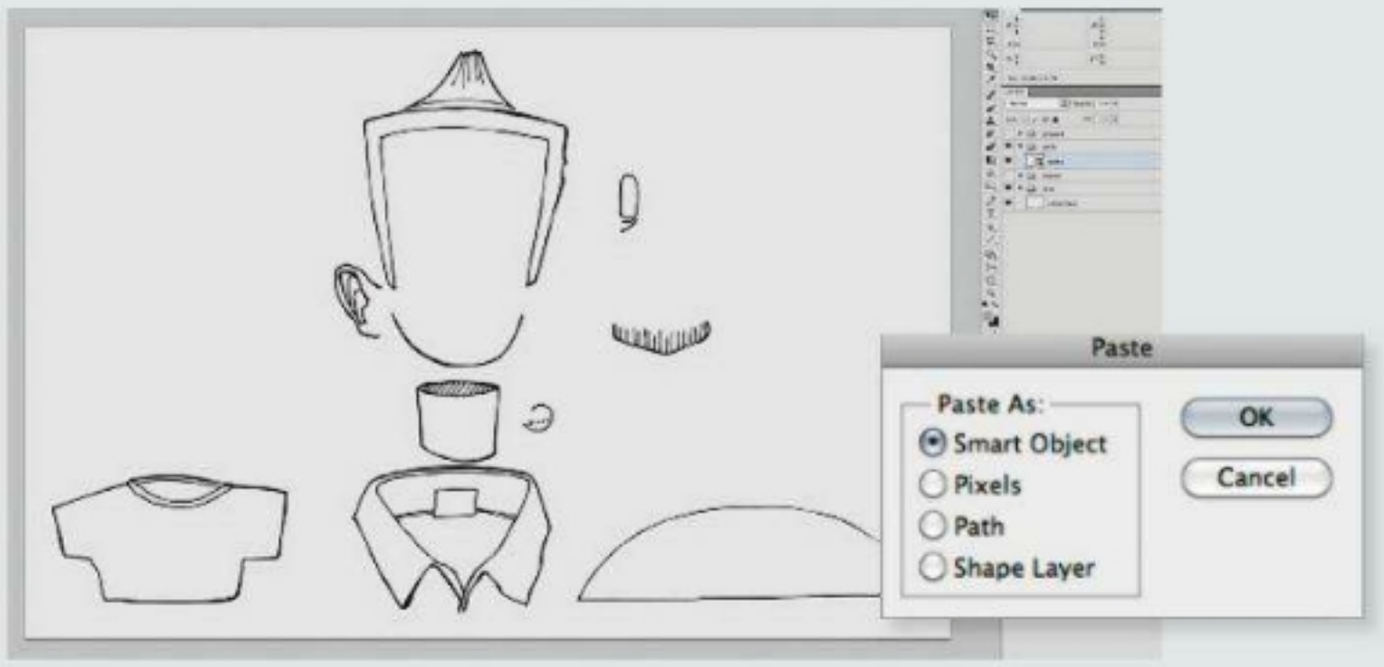
04—— Clean up your scan in Photoshop and, using Levels, crunch the whites to get a really clean background. Doing this makes for much easier tracing in Illustrator and saves time.

02—— From your initial drawing, you'll need to start thinking about how your character is 'built'. In this case, my character had numerous different poses, so you need to think about how the character could be broken apart into the relevant bits: arms, legs, head, torso and so on. At this stage it's important to create a toolkit for your character so that you can concentrate later on the fun part of animating, without having to go back to the start to create assets again.



05—— Using File>Place, import your scan into Illustrator. As you're only after a simple black and white trace, the default Live Trace setting works fine. After Live Trace has finished, click Expand to convert the trace to paths. →

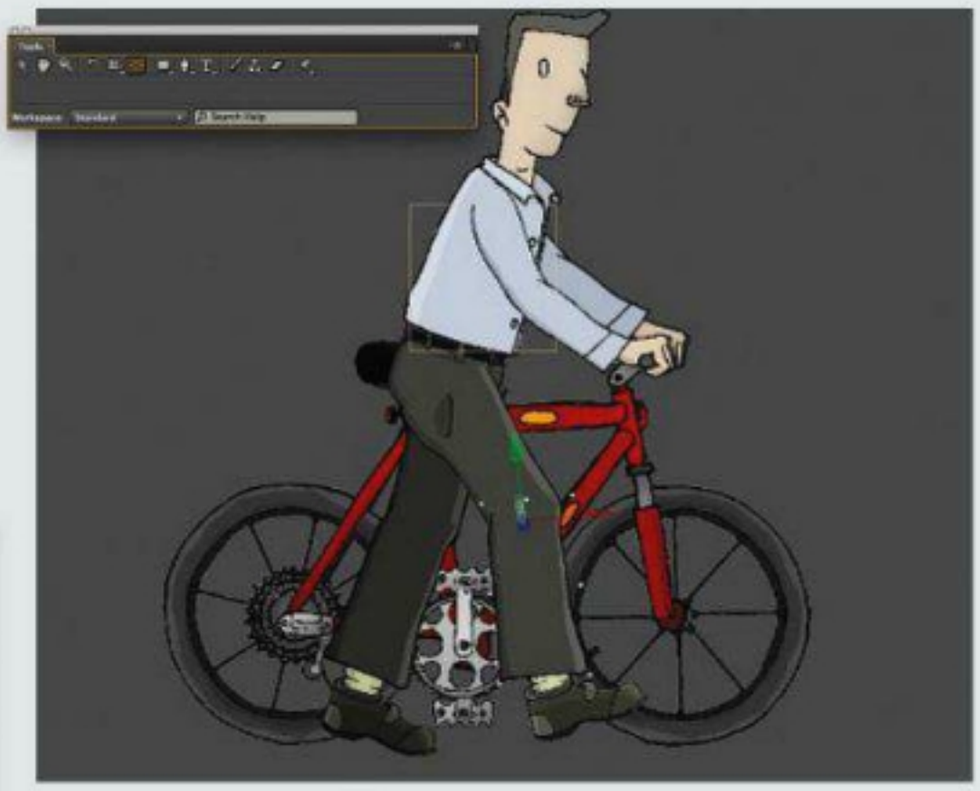
06 I tend to work up my master elements at 300dpi, which gives me the flexibility to scale them down later on when animating. It is of course possible to keep your assets in Illustrator format – I just find it easier to do this stage in Photoshop. Create a new document and copy and paste your traced vector path as a Smart Object. At this stage it's worth keeping it as a Smart Object rather than rasterising it, just in case you need to tweak anything later on.



07 Once you've got your bare outline imported, it's time to start bringing your character to life with colour. I tend to work in layer sets for different parts of the character. For example, I have a 'head' folder containing the base colours, highlights and lowlights. Keeping your layers grouped like this gives you greater flexibility should you need to change things in a particular asset later on.

08 For ease of importing, you'll need to have your individual character assets as flattened files. You can save a master of your layered Photoshop character file then create a version with your character's components merged into separate layers. At this stage you're likely to be dealing with a number of character parts, so it's important that you take time to name your layers correctly.

09 When everything is coloured, it's time to get your assets imported into After Effects. Select File>Import>File and, in the dialog box, select your layered Photoshop file and import as Composition Cropped Layers. This last point is important, as it makes each object its own size rather than the size of the original Photoshop doc.

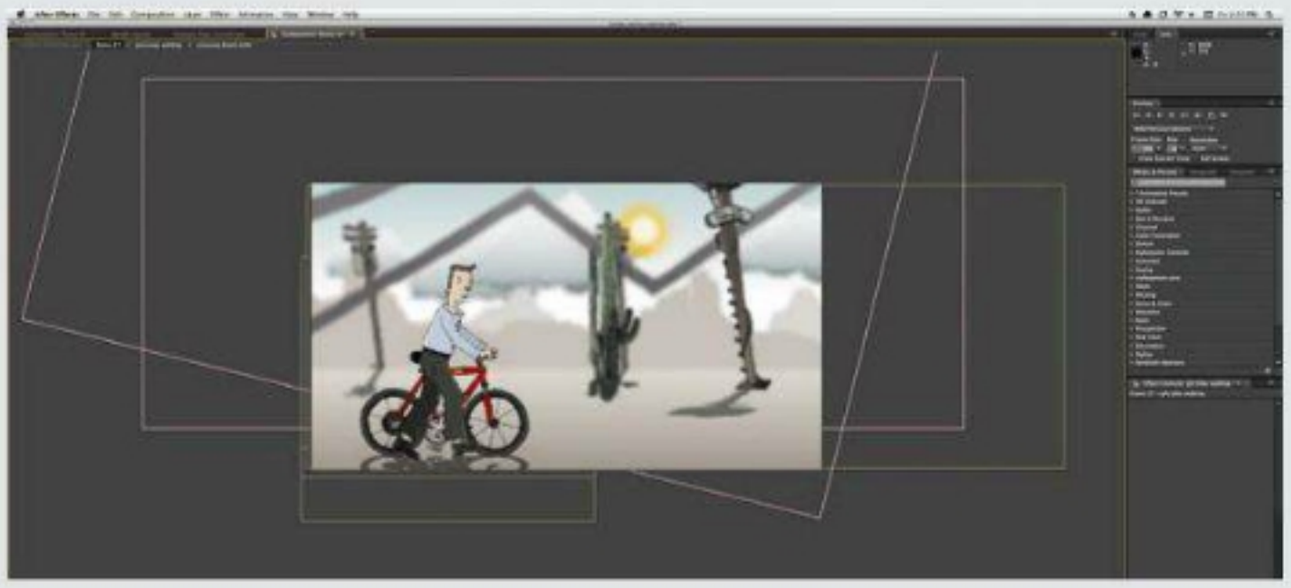


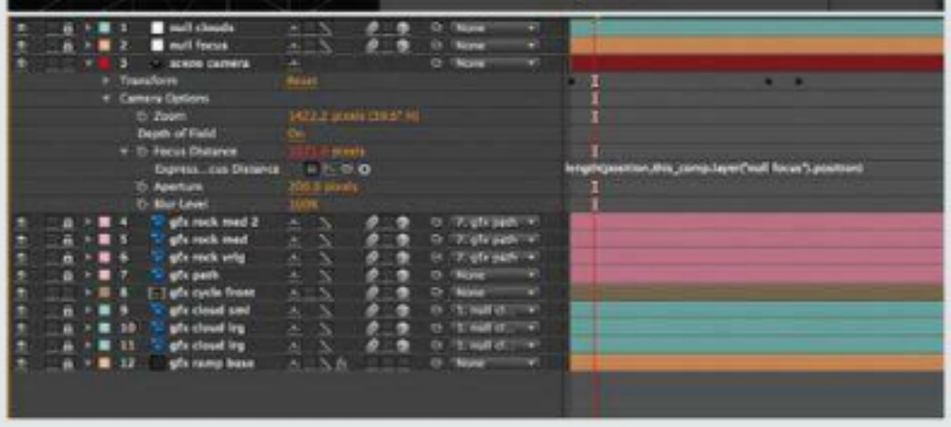
10 One particular sequence calls for my character to walk, so with this in mind I create a pre-comp walk cycle that can be looped on the main timeline. Using the Pan Behind tool, I assemble the character's joints and move them to the centre of rotation for that body part; for example, lower legs at the knee, arms at the shoulder joint and so on.

11 When the anchor points are correctly aligned, I build the character by establishing parent relationships – the torso is the parent of the arms and the upper legs, upper legs are parent of lower legs, and so on. In this sequence my character would be walking, so with this in mind I need to create a walk cycle that can be looped later on. I create a comp with a time of one second; this is enough to create a basic walk loop. Keep your movements simple, spend time considering your key framing, and remember to do RAM previews to get a feel for your animation.

RAM previews

A good tip is to use RAM previews when working through your animation. Doing this enables you to get a feel for the flow of your animation and also to tweak things on the fly. Often, I hold off doing a full render until the very end of the day, then leave it going overnight so that I can review it with fresh eyes the next day.





12 Once you've created a character loop pre-comp, you can use this asset in your animation. One useful MotionScript that I use a lot is the loop_out command. Enable Time Remapping on your character animation pre-comp in the main timeline. Alt/Opt-click the Time Remapping property to bring up the MotionScript panel and paste in the following:

```
loop_out("cycle",0)
```

If you scrub the timeline, your character animation should now loop continuously.

13 One element that I was keen on having in my animation was a sense of depth, but adjusting the camera's focus is often quite tricky and doesn't give the control that you need. I found a great script that binds the focus distance to a null object, meaning that when the null is moved in a scene the cameras focus moves accordingly. Firstly, create a new null object and give it a name, for example 'null focus'. Alt/Opt-click the focus distance property of your scene camera and paste this code into the field:

```
L = thisComp.layer("null focus");
P1 = L.position - position;
P2 = toWorldVec([0,0,1]);
dot(P1,P2);
```

You can now move the null object in 3D space to control focus.

14 Working through your animation, it's important to keep a sense of timing with what you're doing. Always refer back to your storyboard to make sure that you are keeping on-track with everything. Animation is all about the preparation, especially when working to a tight deadline.

Vivian Kim

The New York-based designer has worked with motion's finest over her 10-year career. She explains how pushing After Effects to its limits has earned her exciting new clients

Vivian Kim
New York-based motion artist Vivian Kim has worked in both Los Angeles and New York in post-production, broadcast, film and interactive for over a decade.
www.vivianykim.com

Abstract, ethereal, surreal and open to interpretation – Vivian Kim's otherworldly aesthetic has been called on for everything from advertising projects to branding, broadcast, film, motion and more. Fox Network, McCann Erickson, AT&T and award-winning design and animation house Psyop are some of the many clients that the New York-based art director, designer and animator has worked with since receiving her Fine Arts degree from the School of Visual Arts in New York City back in 2000.

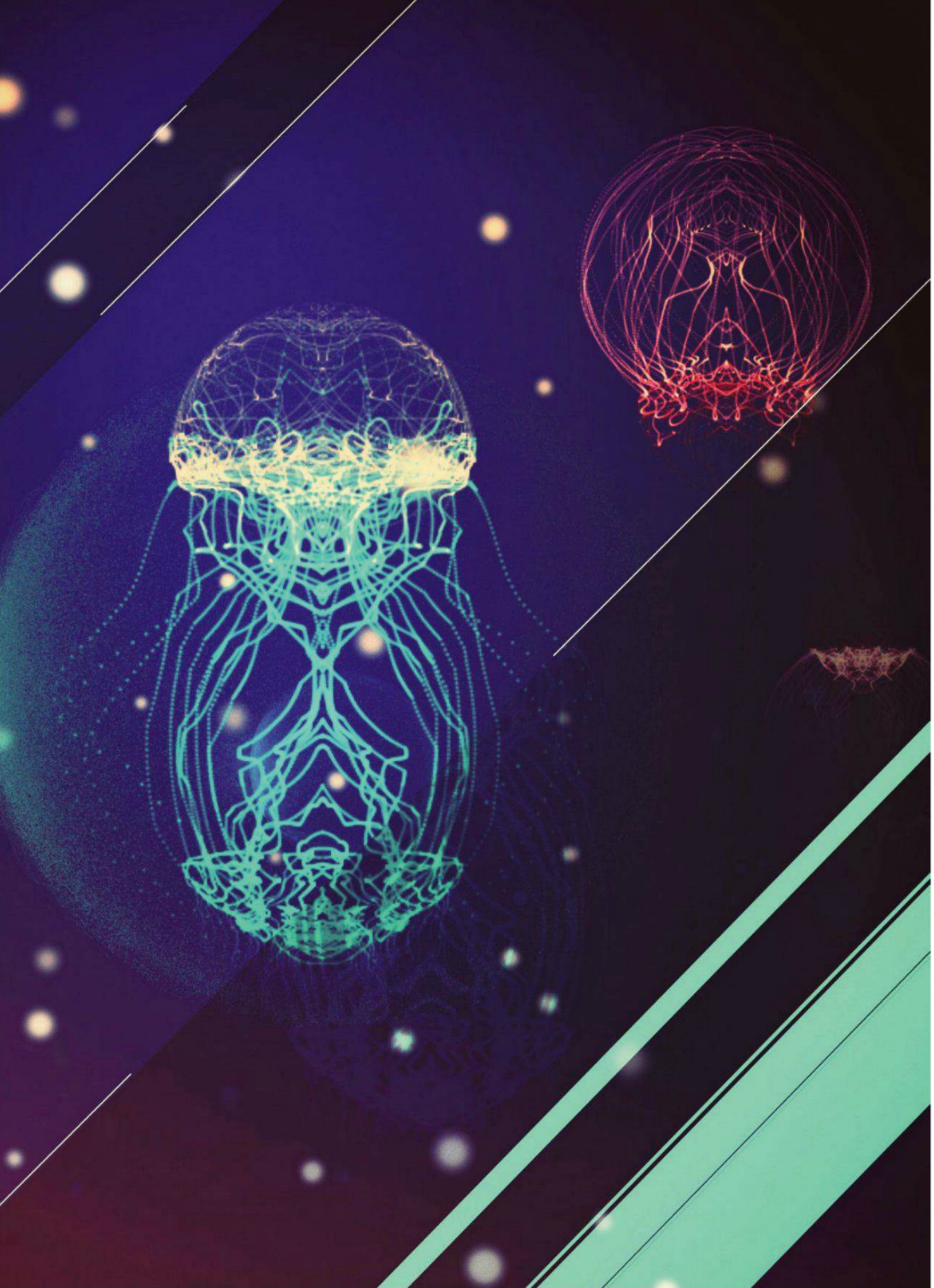
"Doing personal work has helped my career tremendously," she states. "I believe in putting work in your portfolio that you want to do, not necessarily what sells." In fact, some of her "best" commissions have come from self-initiated ideas and concepts: "Generally speaking, clients approach me. I highly recommend maintaining a presence on all the creative networking sites – Cargo Collective, Behance, LinkedIn, Vimeo and so on," she continues. "It's led to work numerous times. Clients see something in my past work or portfolio that they would like to incorporate into their project and they come to me."

Kim's pitch project for Psyop and Comcast Infinity is an excellent case in point. The client referenced a self-initiated project, 'Jellyfishes', created using the then-new Trapcode Form plug-in. In the end her ideas weren't developed beyond the initial storyboards, but it remains a stand-out assignment for Kim: "It was one of those rare occasions when you're given the freedom to explore a brief and try different techniques," she says.

Equipped with instructions from the advertising agency and some moodboards filled with reference material, Kim set about experimenting with different effects. Making →

Pro software skills: After Effects

01 Kim referenced her 'Jellyfishes' piece in this **animated project**, created using After Effects and the Trapcode Form plug-in



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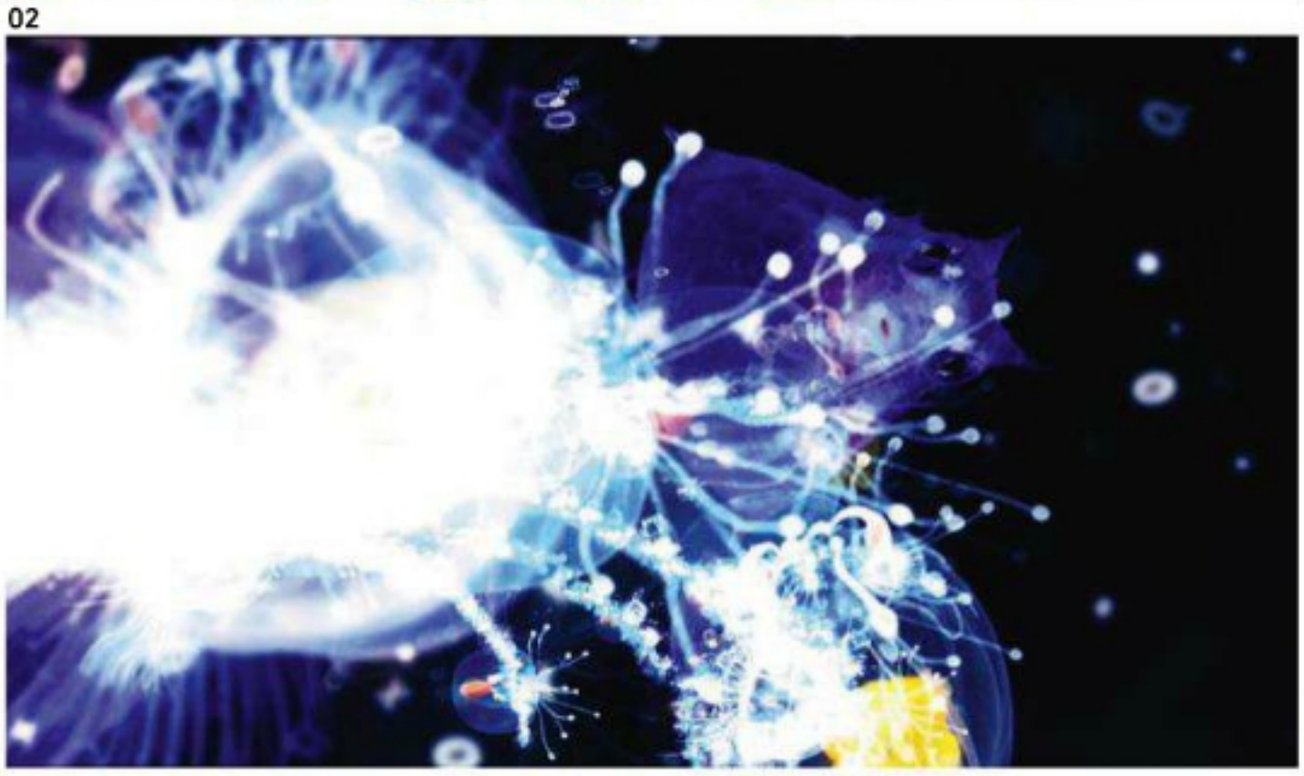

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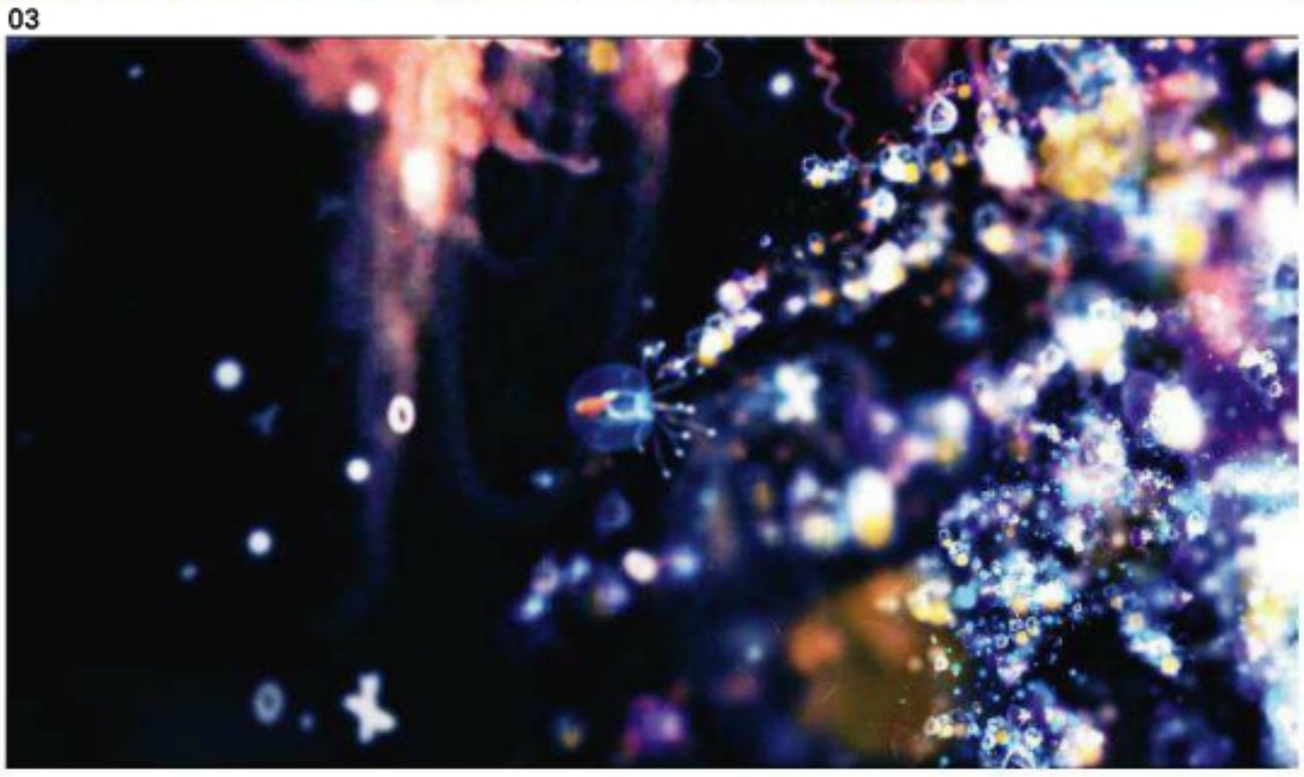

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→ good use of Trapcode Form, she began to create a field of jellyfish and sea creatures. "The brief contained notes on the backstory, a script and what they were hoping to accomplish," she recalls. "I constructed most of the boards in Photoshop and After Effects, and was able to produce a single composition with various assorted image assets that Trapcode Form then took to create enormous spirals and shapes."

The project proved challenging: not only was Kim faced with a short deadline ("as seems to always be the case"), she was also based in New York City at the time while the brief was with Psyop's west coast office. "Telecommuting is very much the norm these days, but I do find it can be difficult when there's an extremely short turnaround," she admits. "I'm really pleased with the outcome though. It pushed me further into learning Trapcode Form and thinking outside the box."

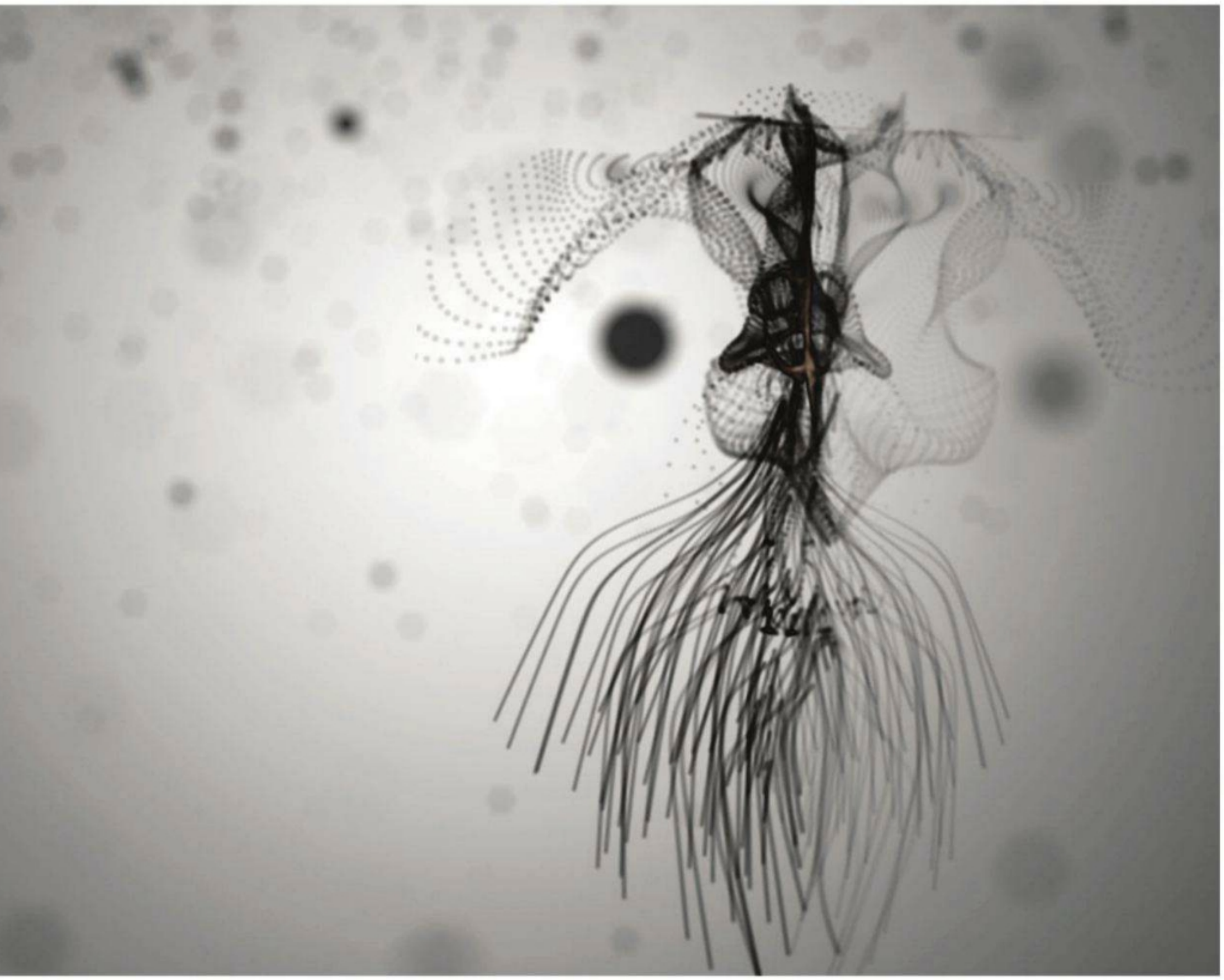
For Kim, music and emotions are a major influence. "Sometimes when I hear something, be it a beat or a song, I can visualise the motion and imagery," she says. Stylistically, she names European motion artists like DixonBaxi, Pleix, Dvein, Sehsucht and PES among her inspirations, while Kim herself started her career as a designer at the highly visual MTV Networks – moving into animation and motion graphics was a very natural progression, she says, and her unique aesthetic has developed gradually over time.

Her first big break in motion came via design studio Manhattan Transfer Visual Effects in the late 90s, when Kim

02-03 Moodboards from Kim's 2009 **pitch for Psyop and Comcast Xfinity**. "Psyop liked the 'Jellyfishes' work on my site," she says. "It was a big factor in me being invited to pitch."

04 In the end, however, her pitch for Psyop wasn't chosen: "They wanted to incorporate LCD screens into the compositions, which I tried to do, but the overall look and feel was beginning to degrade," she says. "However, the project really pushed me into learning more about **Trapcode Form**."

05 '**Jellyfishes**' was the result of many hours experimenting with the Trapcode Form plug-in. "The possibilities with Trapcode are nearly endless," says Kim



was brought in to help animate the screens for an ABC News redesign. "The look and feel were already developed, so I was assisting in creating little animations and pieces for the broadcast animations," she says.

It was her first paying job using After Effects, and Kim was thrown in at the deep end. "There were a lot of long hours on the project," she recalls. "But it offered a great insight into the production process and really fuelled my ambition to do motion graphics."

The scale and scope of her creative output has increased somewhat since then, with Kim's largest project to-date being a redesign for Fox Soccer Channel. FSN needed a new logo and visual language, from which broadcast identities, show opens, lower thirds, promo clips, intros, outros and more had to be designed and animated. Hired for her extensive broadcast experience, Kim worked with a small team of five to deliver the required assets. The project went on to lead to more opportunities within Network Design as well as additional branding projects with other clients.

After Effects is an integral tool in Kim's design arsenal and, depending at what stage of a project she's been brought in, she'll generally work across several programs – both in the Adobe Creative Suite and outside: "I often make comps using After Effects to take full advantage of the 3D space and camera, and bring them into Photoshop for retouching and back into After Effects. The bonus part of working this way is that the layers and layouts are already laid out, positioned properly and ready to animate," she explains. →

Profile
Vivian Kim

06 Kim worked with Mantra Design on the logo design, art direction and opening sequence storyboards for HGTV series '***Destination Design***'

07-08 '***Raven***'. These photo illustrations come from a personal series created using 3D shapes and forms. "The raven comprises many little bits of abstract 3D shapes and forms."

09-11 Kim worked with a team of five on the **Fox Soccer Channel redesign**; a finished comp for Microsoft Office; and an early experiment with Trapcode Form

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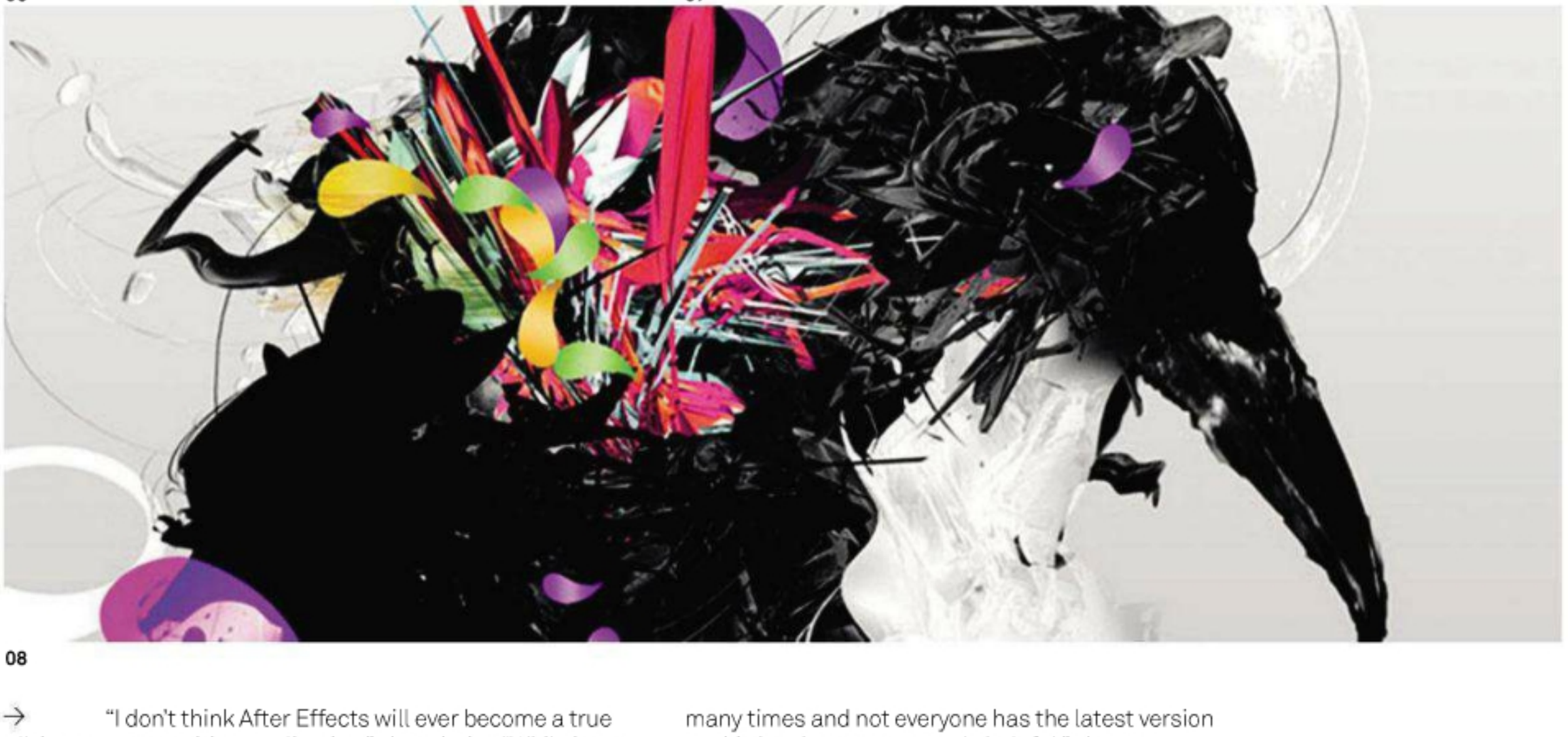

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→ "I don't think After Effects will ever become a true all-in-one compositing application," she admits. "While it can do basic video edits, Final Cut Pro is better for the job; and it's the same for 3D. With the help of plug-ins, After Effects can work within 3D space and create basic shape extrusions, but I feel I can get better results doing something as simple as a text extrusion in Cinema 4D. One of the things that definitely helped my career was learning 3D. When you look at job call-outs you always see something like 'Cinema 4D or 3D skills required'," she reasons.

"Saying that, After Effects has taken steps to increase interoperability, especially with the ability to now save down to previous versions. Project files can cross hands many times and not everyone has the latest version so this has been enormously helpful," she says.

Looking forwards, does she intend to continue pushing After Effects to its limits – or are there any new fields she'd like to explore? "I'd definitely love to work more on compositing with live action and do more on narrative pieces," she says. "I'm always changing, growing and learning."

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Kim's expert tips for using After Effects

1. Work with the Flowchart panel

"I'm a huge fan of the Flowchart panel. It reminds me a lot of node-based compositing software in appearance – but I love the ability to just drag-and-drop an asset to replace another within a timeline. The new asset inherits all the keyframes and layer modes."

2. Play with Magic Bullet Looks

"One thing I've been having fun with is colouring my final animation. I take the final composition, place it into another composition and apply my favourite colour tool to it, Magic Bullet Looks. Most people think of live-action video footage when it comes to Magic Bullet Looks, but I've applied it to motion graphics with some really nice results."

3. Do self-initiated work

Personal work has hugely benefited Kim's career. Experiment with new tools and techniques in self-initiated projects: often the skills, knowledge, ideas and concepts you develop will be useful in client work. "But of course, remember to Auto-Save, Auto-Save, Auto-Save!" she says.

4. Experiment with the Trapcode Suite

"I've been a fan of the Trapcode Suite of plug-ins for a long time because the possibilities are nearly endless. I'll often have an idea of what I want to create, but when I go into actual production within After Effects and Trapcode I end up with something totally different – and always in a positive way. It gives the ability to create something beyond the scope of what you might have originally intended. For new users, I'd recommend that you experiment, experiment and experiment some more."

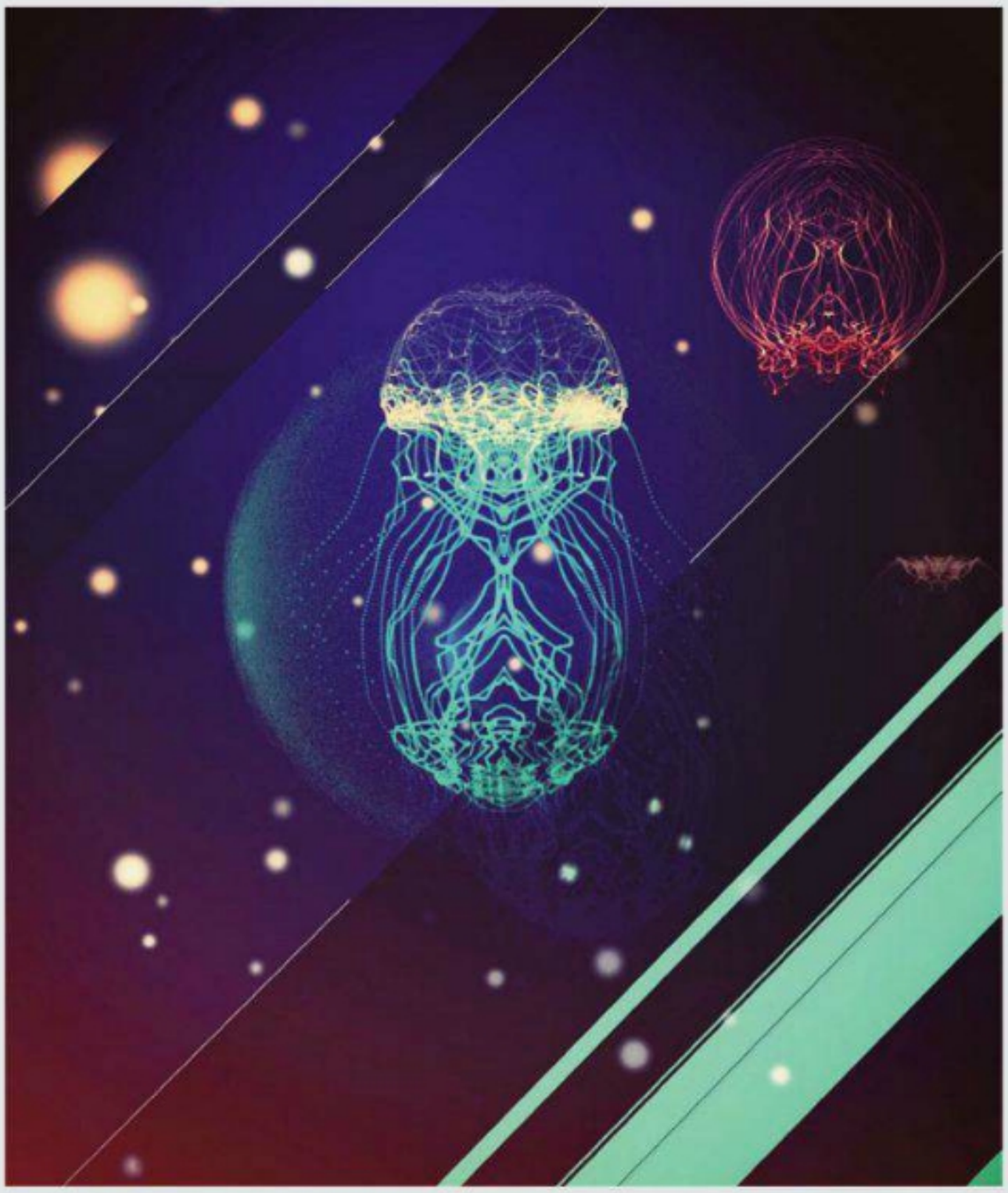
5. Move into 3D

There are some plug-ins, such as Zaxwerks 3D Invigorator and ProAnimator that work within After Effects for basic text and shape extrusions, and add dimensionality. "But there really is no comparison to importing objects created from Cinema 4D. For AE users, Cinema 4D is definitely the way to go," Kim advises. "The workflow to import and export between the programs is pretty straightforward and very easy."

After Effects CS4 or later, Trapcode Form 1.1 and Trapcode Particular 2.1

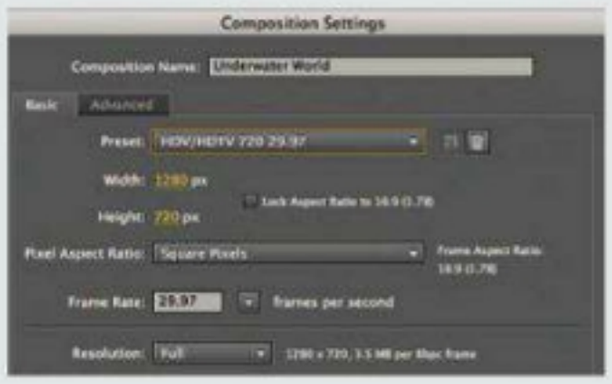
Experiment with particle effects

Vivian Kim shows you how experimenting in After Effects with the Trapcode Form plug-in can create some beautiful and unexpected results



All the elements in this animation are generated within After Effects using the Trapcode Form and Particular plug-ins and require no external PSDs or graphic elements. In motion graphics you have to maintain a steady balance between design sensibilities and technical savvy: the most successful and influential people in the field generally excel in both.

The project featured here was created after hours of experimenting with Trapcode's settings and randomly entering values. Initially I was struggling to produce an entirely different result – a funnel, or tornado – but I ended up with some very unexpected but beautiful shapes that I knew I wanted to build on. Over the following steps I'll explain how to use Trapcode Form to create an abstract sea creature with a looping swimming motion. There's a free trial of Trapcode on the DVD.



01 —— In After Effects, first of all create a new composition (Ctrl/Cmd+N) and name it 'Underwater World'. Set the Width to 1280px, Height to 720px and Frame Rate to 29.97.

02 —— Make a new solid (Layer> New> Solid) and call it 'Sea Creature 01'. Add the Trapcode Form effect to the layer you've just created (Effects>Trapcode >Form).

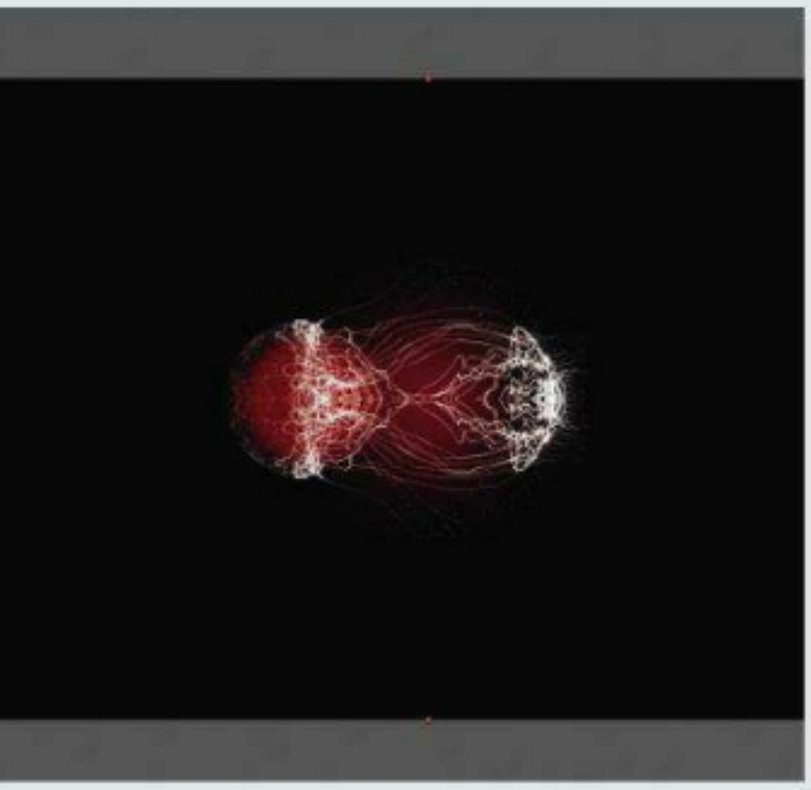
03 —— Trapcode Form has a vast amount of settings but we're just going to focus on some key settings here, and leave the rest at their defaults. For Base Form select Box – Strings from the drop-down menu. Set Size X to 300, Size Y to 0 and Size Z to 100. Set Strings in Y to 1, and Strings in Z to 120. Under Disperse and Twist, set Disperse to 22 and Twist to 8. Next, under Fractal Field set Displacement Mode to XYZ Linked, and set Displace to 100. Now set Flow X to 100 and Flow Evolution to about 2. In the Fractal Sum drop-down menu select abs(noise). Last of all set F Scale to 7.

Vivian Kim
— A New York-based motion artist, Kim's career spans over a decade of working in post-production, broadcast, film and interactive.
www.vivianykim.com

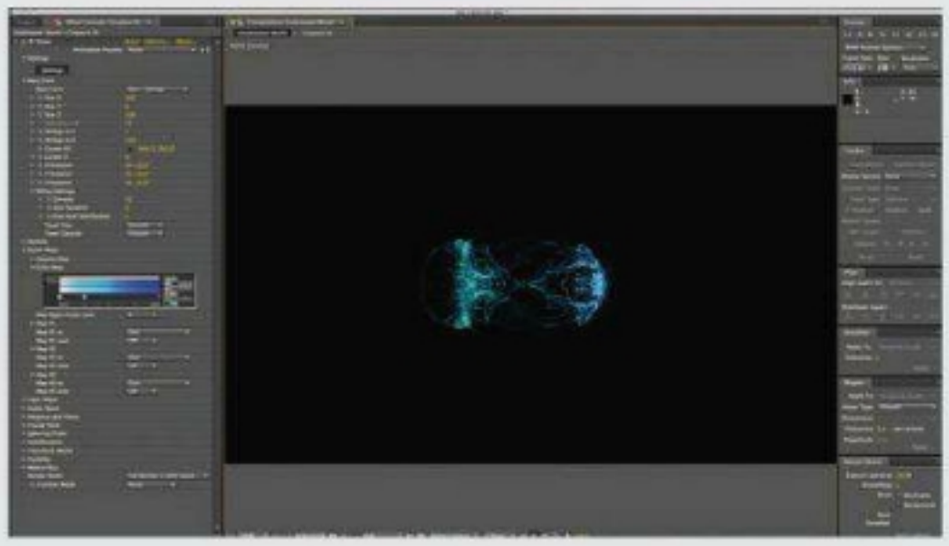
Time needed
3-5 hours

On the disc
You'll find a finished version of this project, as well as a trial version of the Trapcode suite and full-size screenshots on your disc, in the Resources section

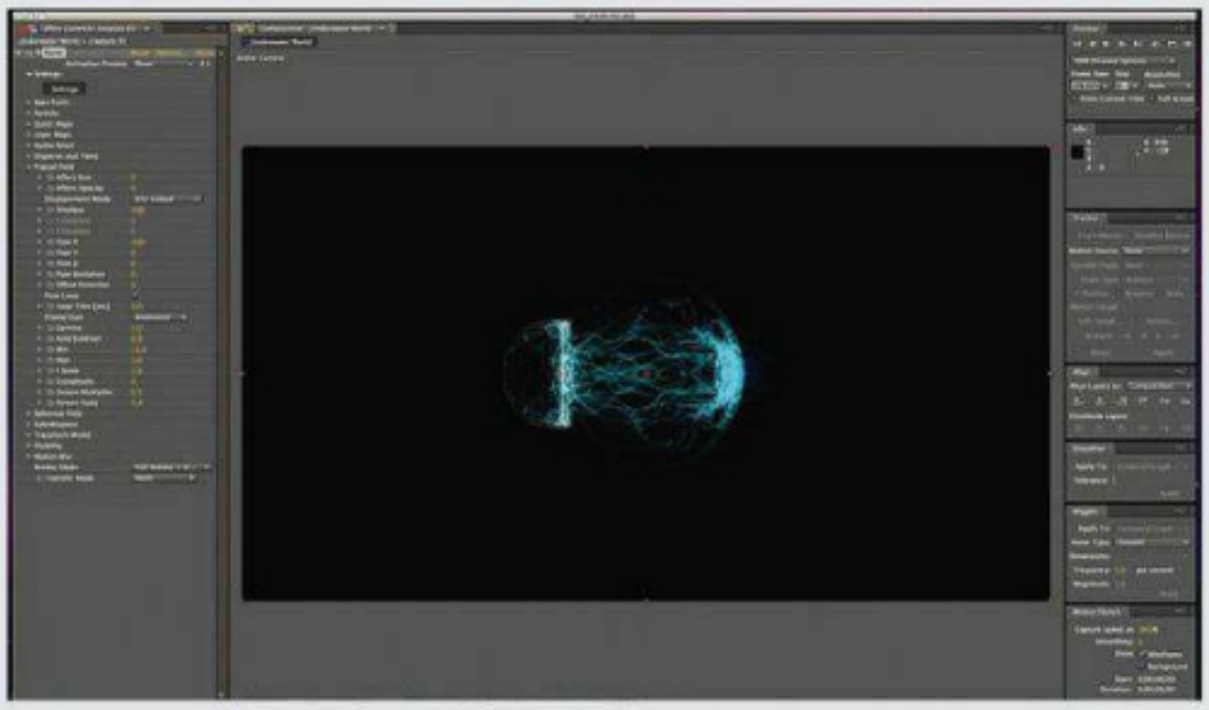
Skills
— Work in a 3D space
— Use the Trapcode plug-ins



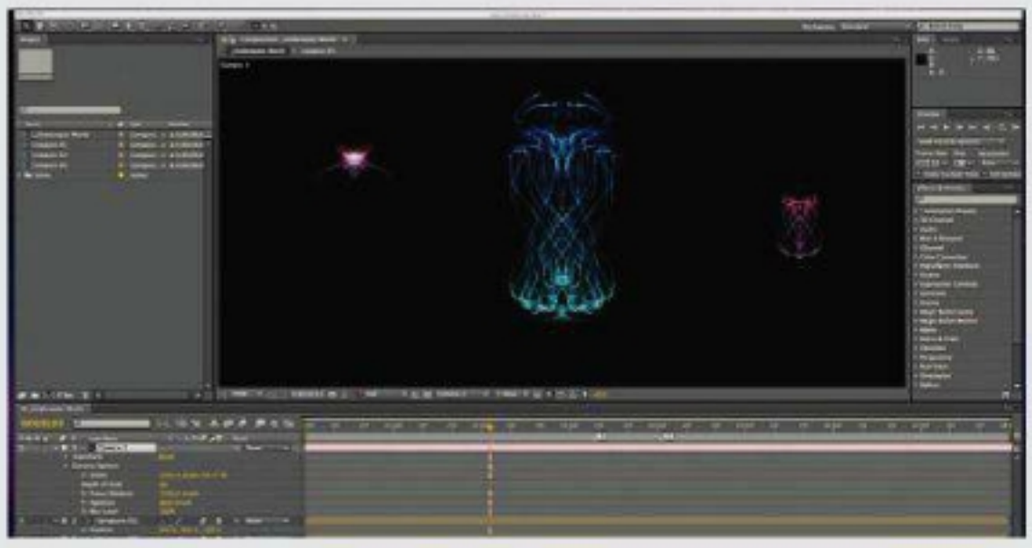
04—— It doesn't look like much yet, but it'll soon start to take shape. Open the Spherical Field Settings, and for Sphere 1 set Strength to 77, Radius to 200 and Feather at 100. If you select the Visualize Field options, you'll be able to see where the sphere is creating the distortion that makes the creature's shape, and can control this for more finite control. Move the Position XY along the X axis with the Visualize Field box checked to customise the bulge distortion created by the sphere. For Sphere 2 insert the same settings, but make the radius smaller and move Position XY to the left or right of Sphere 1. In the Kaleidoscope options set Horizontal to Mirror Mode, and then set Behaviour to Mirror and Remove.



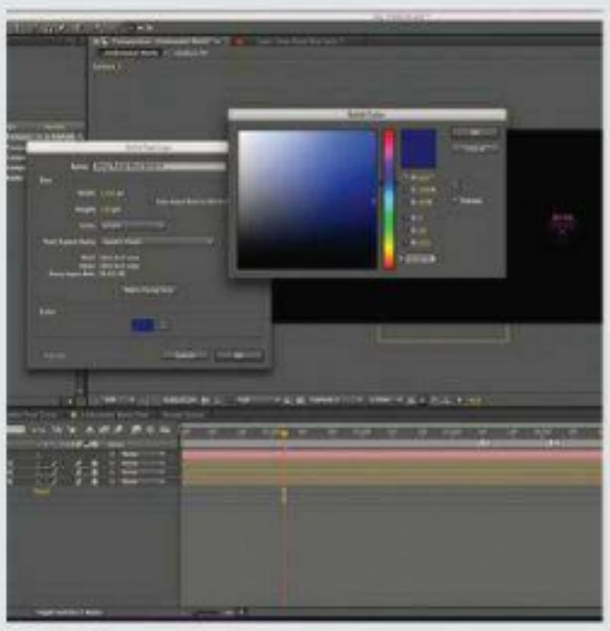
05—— Now you can fine-tune the appearance of the creature. Under Base Form>String Settings you can play with the density options. Set Taper Size and Opacity to either Smooth or Linear. Then under Quick Maps>Color Map you can add colour and gradients to your creature.



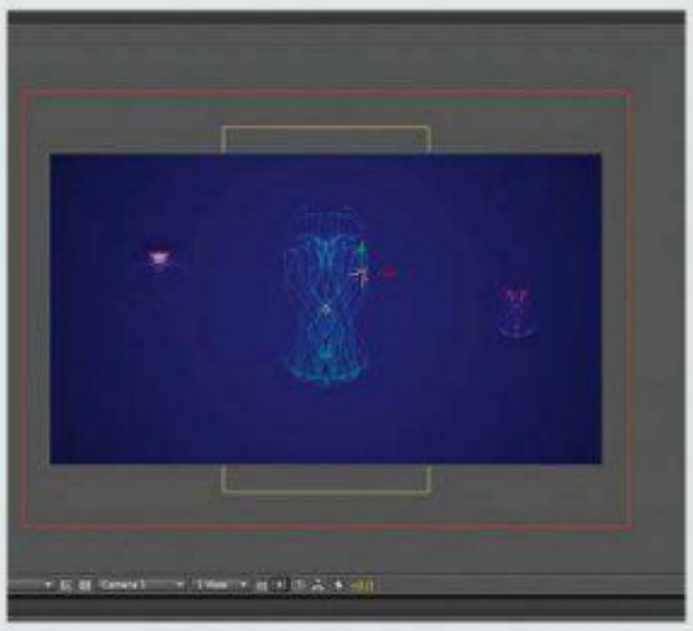
06—— Next we are going to create a fluid loop of the sea creature's swimming motion. This is all set within the Trapcode Form Effects Control panel. Use the following settings as a starting point and adjust them to your liking: under Fractal Field leave Displace set to 100, Flow X to 100, Flow Evolution to 2, and F Scale to 7 (we set these earlier). Now change Offset Evolution to 5. Since we are going to create a loop, check the Flow Loop box and set Loop Time to 3 seconds. We want the form to have a sense of randomness, so we're going to turn up the Octave Scale to 2. Hit Ram Preview (shortcut key: 0) to view the effects of the settings.



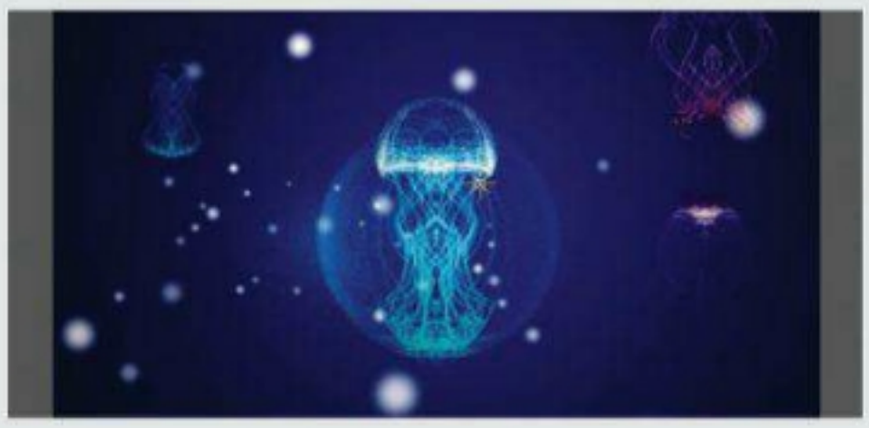
07—— Now to give the sea creature some friends. With the Sea Creature layer selected, create a precomp (Layer>Pre-compose) and name it 'creature 01'. In the Project panel, duplicate this comp to create two more sea creatures. Then go into the Trapcode Form panel and adjust the Spherical Fields and Color Map options to vary the appearance. In our Underwater World comp, add a camera into the scene (Layer>New Camera). Select 35mm from the Preset menu. For a cinematic feel, we're going to turn Depth of Field on and set the Aperture to 60. Drag the other two creature comps into our Underwater World comp. Turn all the creature comp layers into 3D layers by checking the 3D cube icon. Set Z Rotation to 90 for all creatures so that they are swimming upright, and stagger their positions so they're not on top of each other.



08—— At this stage, let's create an environment for our sea creature. Create a new solid and give it a nice royal blue shade with the Color Picker.



09—— Turn the background layer into a 3D layer by checking the 3D cube icon. Position the background furthest in the Z space and scale it accordingly to encompass the entire frame. Next add a point light (Layer>New>Light) and position it to illuminate your scene.



10—— To really make our environment come alive we can some adjustment layers with noise and grain, and in this case some floating particles. For more depth and texture I've also included some extra lights, debris and a few pre-rendered elements to add more dimension to the animation. This was just a brief overview to get you started: experiment and see what you can produce.

Broken Antler

UK-based artist and director Ben Adam is making huge waves in the world of motion graphics. And with clients such as Jaguar, Land Rover and IBM to his name, his career is anything but broken...

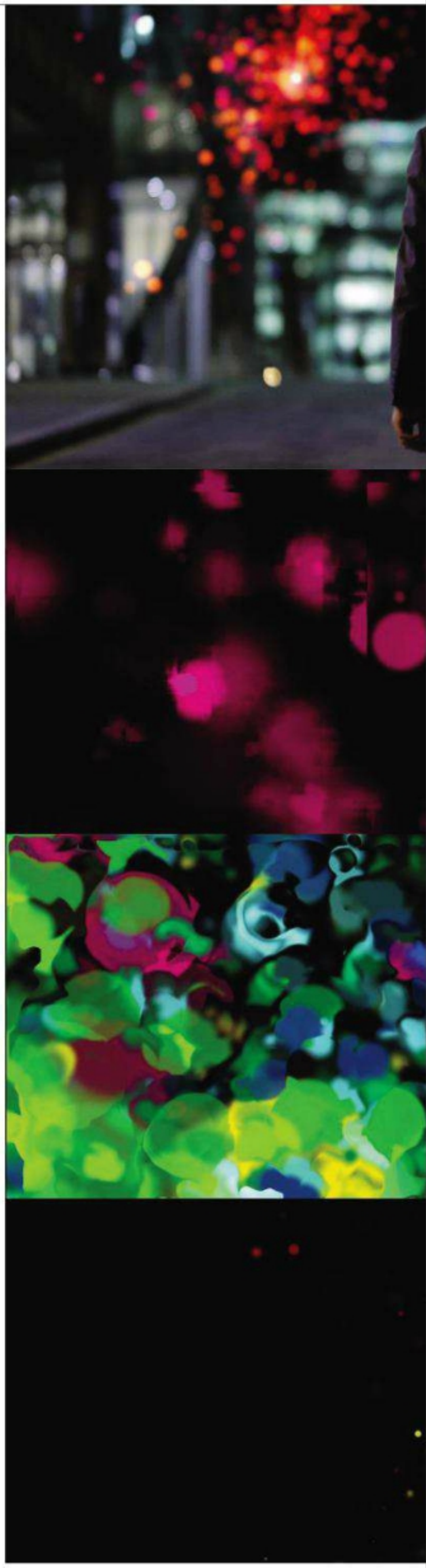
Ben Adam
Ben Adam – aka Broken Antler – is a freelance motion designer and director based in the UK. His huge client list includes Jaguar, BBC, Land Rover, Burt's Bees, Vodafone, Rolls Royce, Five, Channel 4 and IBM.
www.brokenantler.com

"You need to graft for your craft," smiles motion graphics artist, director and designer Ben Adam – aka Broken Antler. "Work hard, first and foremost, if you want to make a living from motion graphics, or any creative craft. It won't come to you and you won't get noticed by potential employers if you don't promote your work," he continues. "It's a small industry, and someone you're working with now will know your next employer, so there's a lot of pressure on projects. I find producers come back to you if you do your best to produce the best work that you can, in the time, to the brief, and are as accommodating as possible." It's sound advice from Adam who has, under his pseudonym Broken Antler, created shorts and stings for a vast array of clients including IBM, Jaguar and Land Rover.

Adam's style treads the fine line between arty and experimental, and strong commercial appeal – and it's something that's evident in his stings for Jaguar, a client that Adam describes as "almost fearless with regard to what they'll let you do." He continues: "I have a lot of fun working on their brand, and basically get paid to experiment."

When quizzed about his style as a motion graphics artist, Adam is thoughtful: "I don't know if I have a distinctive style," he admits. "I sort of come from the background of recreating work in the style of this film or that." But he does identify one key thing that makes his work appeal to clients across the globe: "I've been told I have a quite aggressive edit style, which is what led me to editing on the Jaguar films," he nods. "I find my work is often quite contradictory, in that I like my graphics to be neat, clean and polished, but I also like to add digital glitches, grunge textures and elements. I try to be honest in my work too, and not to produce work I wouldn't be prepared to put my name to."

Being a multi-disciplined creative, a typical brief for Adam varies according to the type of project that he's →



01 (Opposite) Adam's work for IBM includes two **conference openers** – stills of which are shown here

01

Smarter Electronics

02 Edge Pictures commissioned Adam to create some animated scenes to be used within a comms film for Vodafone. The result is a **bold, vector piece** that's full of energy

03 Adam devised the **whole look and feel** for the BBC One show *Trackers*, creating an information-heavy, yet slick title sequence

04 Adam directed the new video for Starkey's 'Lost In Space'. Everything was shot on **green screen** and composited in After Effects, with a little help from a few plug-ins

02

03

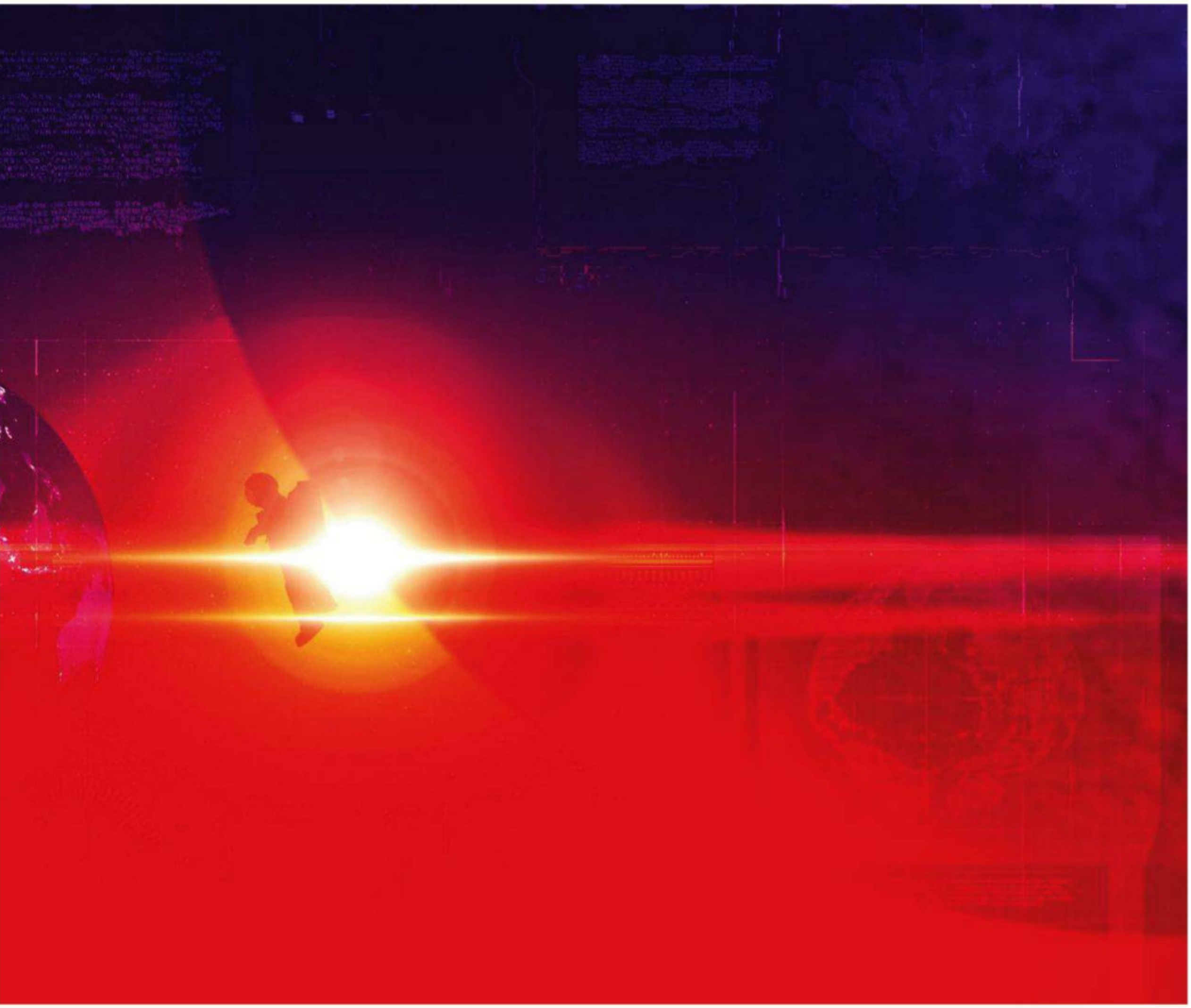
04

→ undertaking. He begins: "If I'm brought in to collaborate on a film by adding motion effects or animation, I'm usually shown references to how they would like it to look. Sometimes it's very achievable, but other times it's not at all, so we discuss how we can make something that has the same feel." He continues: "Often I'm brought in and asked to add some graphic elements and that's it – the client doesn't know what they want, other than something to spice up the film. I then treat it much like a pitch, and go through the same sort of process."

Adam is of course a director as well – and explains how a typical job in this role works: "Directing a project starts with the pitching process. I'm usually presented with a brief, which can be anything from a very detailed document with references of what your client wants, to just a project title and a brief description," he explains. "I then go away and research the topic or product. I regularly watch clips on YouTube, Vimeo and so on, and look through publications like *Computer Arts* for inspiration. I also have a digital scrapbook of films and videos that I like, as well as several actual scrapbooks, in which I put anything I can find. I start brainstorming ideas, but I'll usually lock onto an idea, technique or direction that I feel excited about taking quite quickly. Often I'll visualise a small segment of the film, and then start building everything around this."

Adam's After Effects workflow may surprise, and he's the first to admit that he works differently to many of his contemporaries: " I create rushes, rather than a pre-planned sequence," he says. "I mean, I do plan it – I'll draw out a loose storyboard or plan out a scene on paper before attacking it in After Effects – but I work a little more organically."

He elaborates: "I often create a scene, add lots of different cameras to it, and then render off the full animation from different perspectives. I take these graphic rushes, and edit my piece together. Once I have an edit that I'm happy with, I then usually take it back into After Effects, add some more



effects – maybe even run off some more renders of the whole sequence, heavily treated with an effect or grade, and then cut them back into the edit. I can go back and forth like this quite a bit, depending on what I'm working on."

One of Adam's most recent projects – a music video for Starkey's 'Lost In Space' – is a sublime piece of work. "Shot on green screen, everything was created and composited in After Effects, with the help of Trapcode's Particular and Holomatrix and Video Copilot's Action Essential, Twitch and Optical Flares," reveals Adam. The video was then edited and graded in Final Cut Pro. Adam was commissioned through RadarMusicVideo by Civil Music to direct the video, but how does a motion graphics artist find work in such an incredibly competitive industry? "In the early days I was really active in promoting myself: I was constantly pushing my work in front of prospective employers," recalls Adam. "Until a year or two ago, I had an editing agent too, but I ended up finding more work myself, so I left them. It took me a long time to get established, but now the work finds me." Adam started using the Broken Antler moniker as a brand: "This has really paid off for me," he says. "I think producers are always looking for a new way to win pitches and keep their clients, so are actively looking for a new approach as much as I'm looking for work. I only promote my work online. I do this because it's instant; I can update my portfolio quickly; it can be easily viewed by producers who want to be able to quickly view the work of someone they potentially want to employ; and it also enables people to find me by accident, which has led to some great opportunities."

After Adam's studies at Glamorgan Centre of Art and Design Technology, it took him 18 months to land his first creative job, editing at a small regional TV station. "It was here that I really started cutting my teeth and developing an edit style, and I started playing with After Effects," he says. "Initially I used After Effects and Photoshop to fix shots in my edits, →

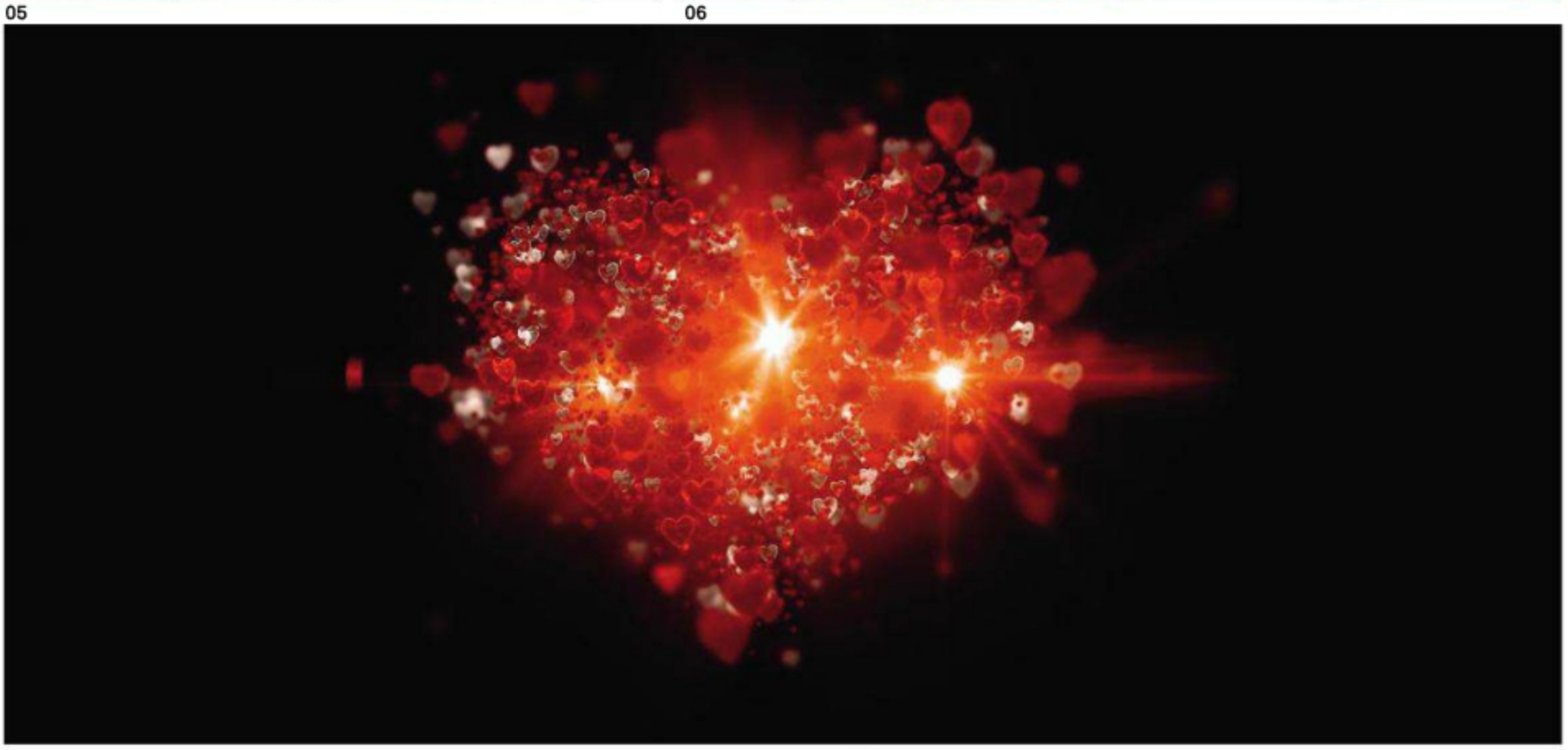
05

05 One of Adam's many personal pieces – an **animated Christmas card** in which a wolf meets a grisly (and surprising) end

06 Adam worked with Ben the Illustrator to create this **stunning music video** for Maple Mountain Sunburst's 'LookListenFeel'

07 As well as creating animation and motion graphics, Adam is a **talented illustrator**, as this personal piece for his wife proves

06



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→ or to add basic graphics. Whilst there, I was nominated for Young Editor of the Year at the Broadcast Awards, and it was from here that I managed to pick up an editing agent. I started editing for all sorts of projects, from broadcast to corporate, and continued incorporating graphics and small visual effects within my edits."

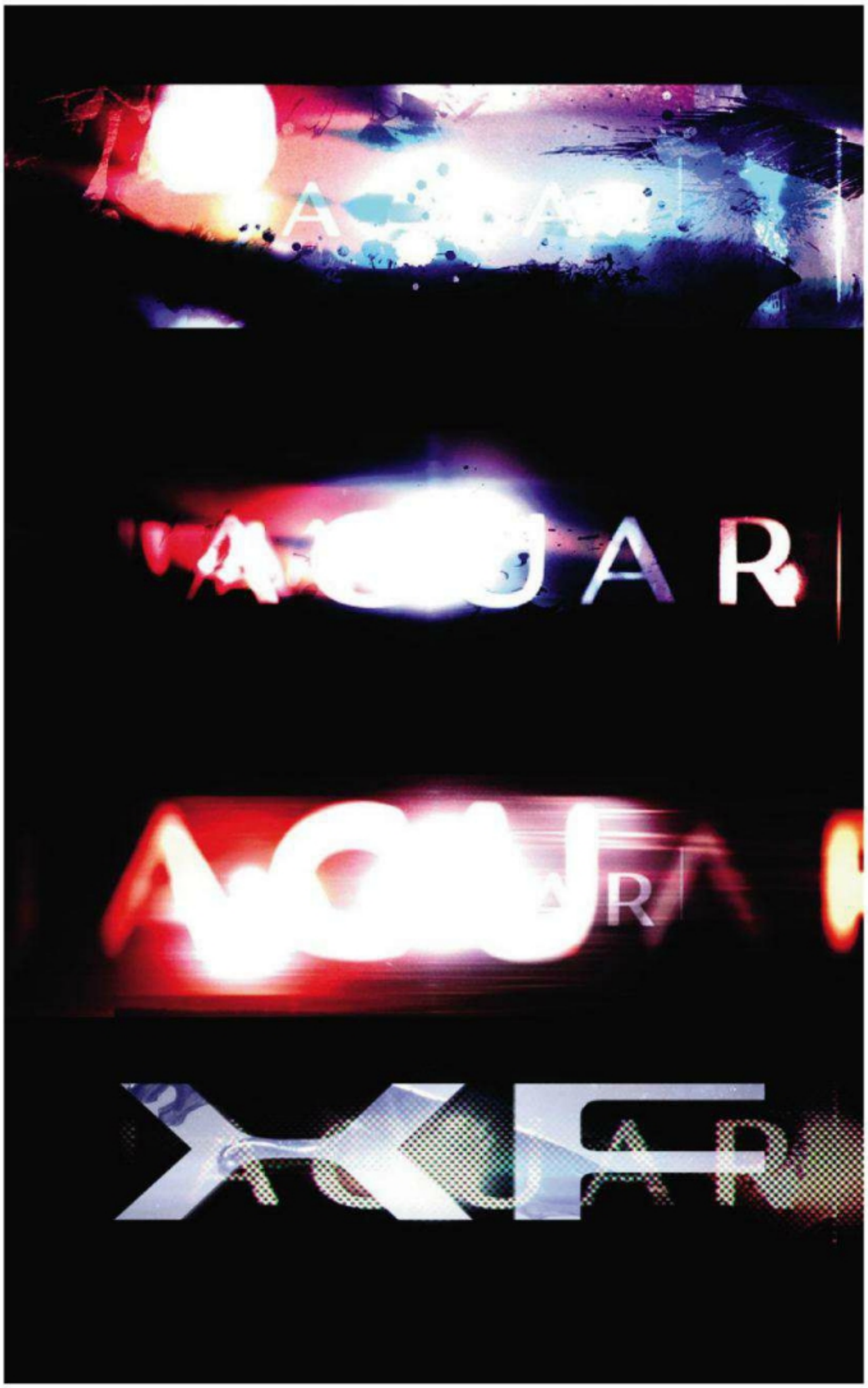
Today, Adam works out of Broken Post – his home studio that houses his quad-core Mac Pro with 16TB RAID, and his trusty Wacom. "I also have a MacBook Pro so I'm able to carry on working while I'm rendering," he says. "I generally work from here as I have everything I need with my Canon 550D kit and lights, all my software, FCP Studio, After Effects, Mocha, Illustrator and Photoshop," he smiles.

There's one question we must ask before we leave Adam: why Broken Antler? "I had a company with two friends, but I was growing more impatient with the direction it was going in," he remembers. "I started thinking it was time for me to leave the company, so I went for a walk near the woods at the back of our offices to weigh up my options. I ended up tripping over a small antler on the ground.

"It sounds silly now, but at the time I imagined this young deer shedding his infant antler and becoming an adult buck. It kind of made sense that I was also this young deer, and it was time for me to become a fully-grown buck and step out on a new adventure. That night I told the guys I was leaving, took the antler home – I still have it – and drew up a design for my new company, Broken Antler."

Pro software skills: After Effects

08 Working with Tangerine Films, Adam produced different edits and graphic elements for the new **Jaguar XF, XKR-S and XKR** brand Films



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Ben Adam's top tips for After Effects

1 Shortcuts

Learn the shortcuts, as it will save you a huge amount of time. Simple shortcuts such as 'U', which brings up all the keyframes you are using on the selected layer on your timeline, will make your workflow much faster.

2 Use the tilde

I find the 'tilde' key (~) pretty much indispensable. It opens up the selected panel to full screen. When I'm using a lot of layers, nothing beats the ability to open up the timeline full screen so I can see what I'm doing.

3 Turn off Auto-Orientation

When working with cameras I find it's sometimes a lot easier to turn off Auto-Orientation by going to Layer>Transform>Auto-Orient. This way I don't have to worry about animating the Point Of Interest.

4 Increase render speeds

I make this mistake a lot and it's such a silly error. When a render is taking a ridiculously long time, look at your project and work out what elements can be pre-rendered separately and then re-imported back into the scene. It will save you loads of time in the long run.

5 Secret preferences

Hold down Shift and then go the General preference pane – you'll see an option called Secret. You can, from here, force your machine to purge every so many frames for those renders that just can't seem to make it to the end without that horrific sheep bleat.

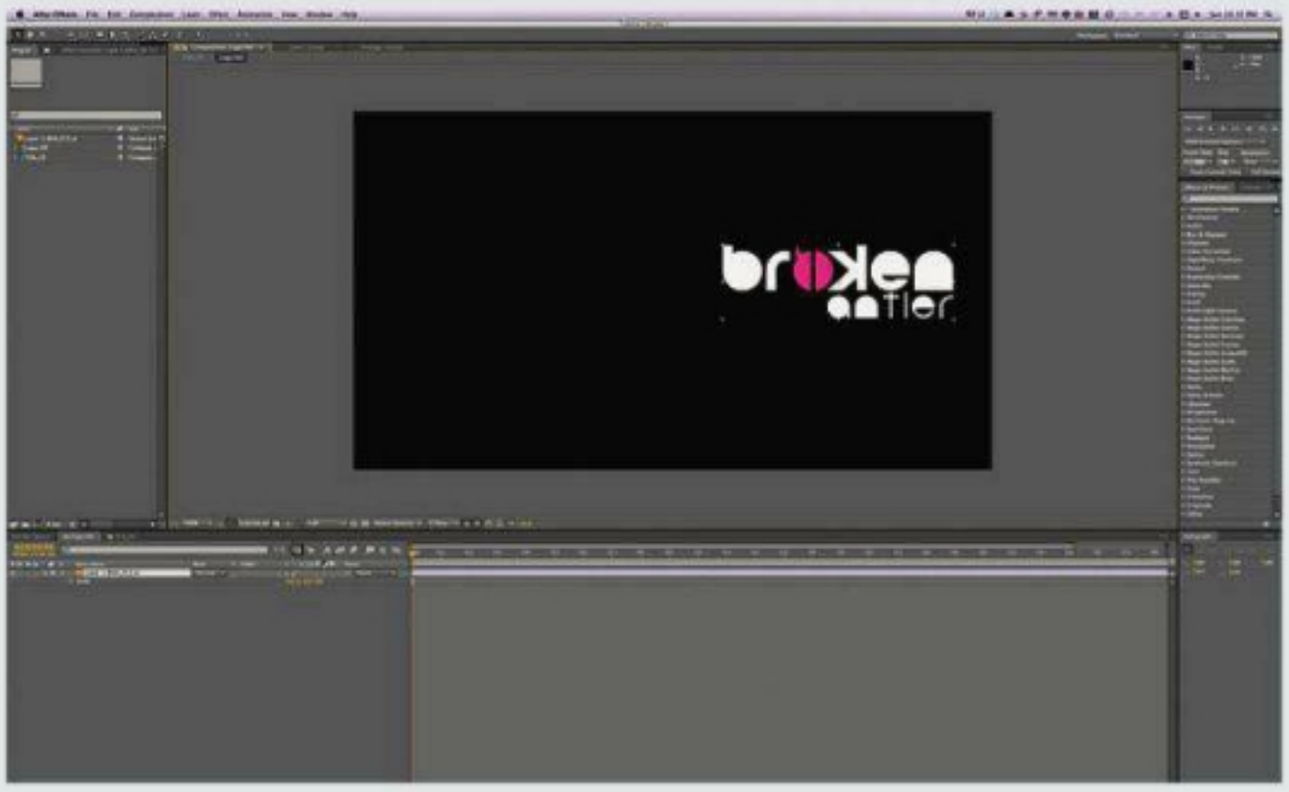
After Effects CS5.5

Simulate smashing glass

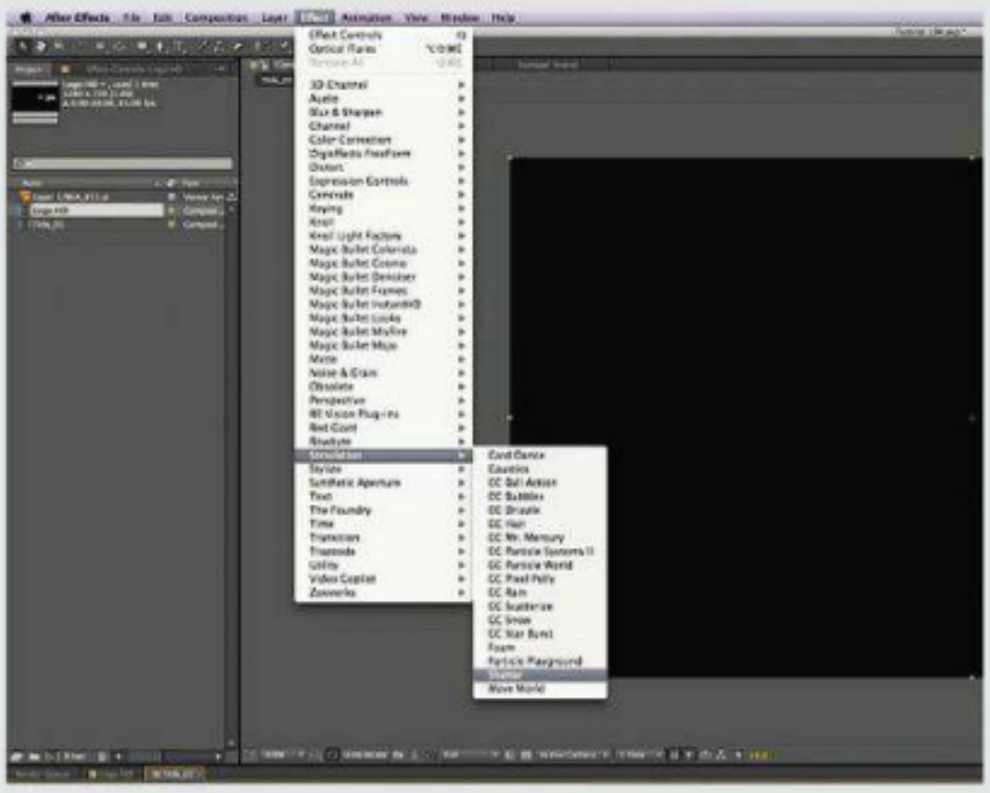
Ben Adam shows you to create a unique sting with the Shatter plug-in...

The Shatter plug-in is one of those extras that comes with After Effects but rarely gets a look in. It can simulate smashed glass and generate interesting abstract forms – and has the ability to work in 3D with your comp camera – but it can't generate depth of field. I recently experimented with it while creating a sting for my new reel and have been pushing it ever since to see what I can achieve.

In this tutorial we'll look at how to get around this by using an expression to link cameras over multiply layers. This same expression can be applied to lights as well, and is a really useful technique to have in your arsenal.



01 Let's start with a new project and a new composition: I'm going to work in HDV 1280x720 with the frame rate set to 25 – but pick whatever screen size you require. Name it 'Logo HD', then duplicate this composition and rename the duplicate 'Title_01'. Go to File>Import and select the logo or image you want to work on. Add the logo to your Logo HD comp and position it where you like.

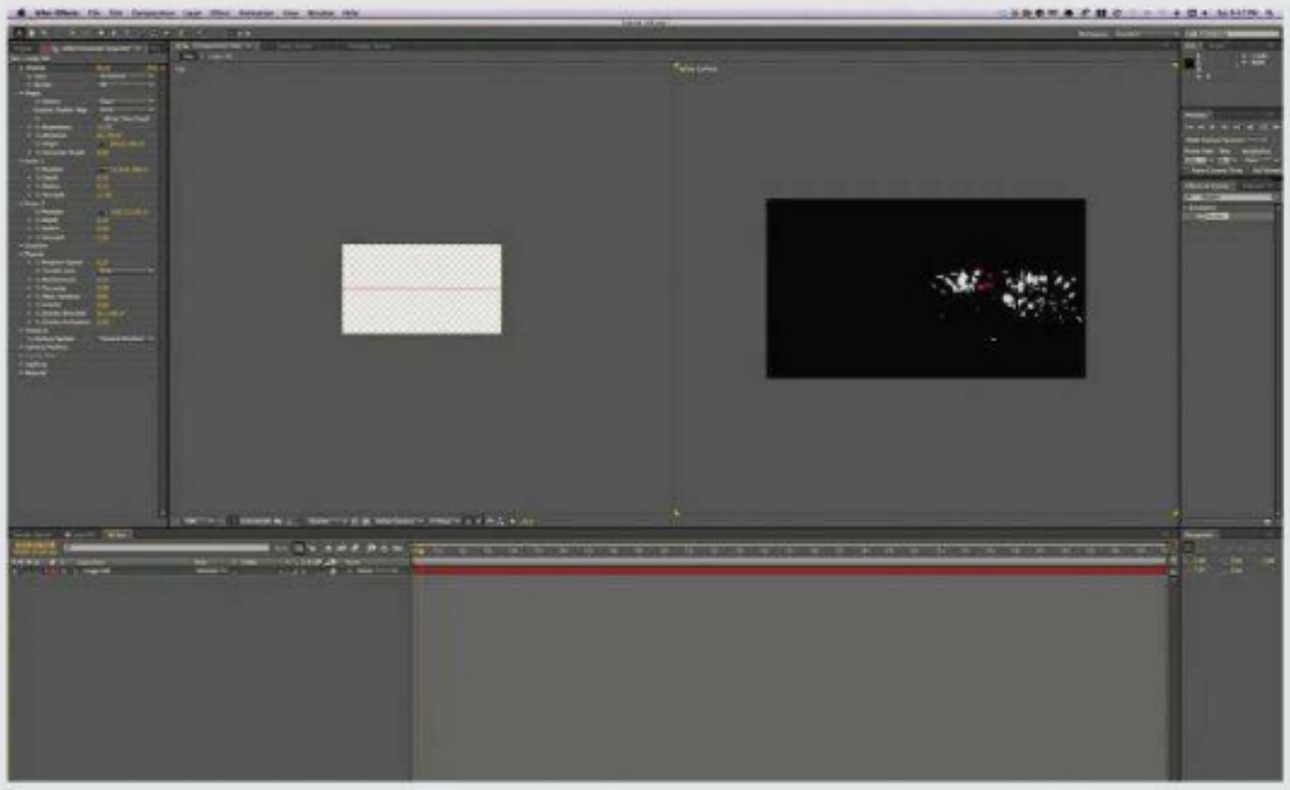


02 Drag the Logo HD comp into your Title_01 comp. Go to Effect> Simulation> Shatter and add this effect to your Logo HD comp. There are various different settings to choose from, so feel free to experiment.

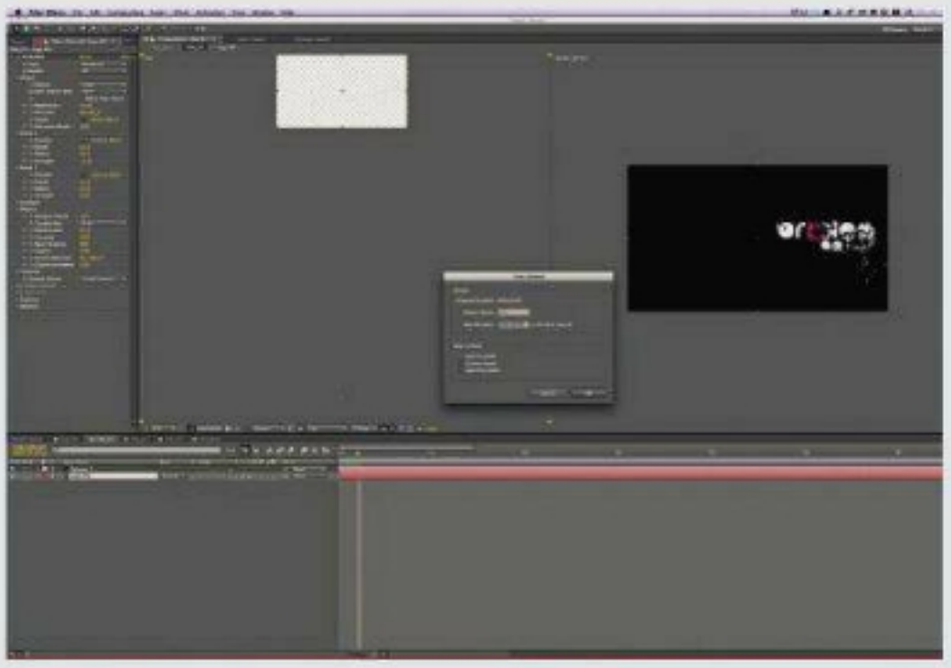
Broken Antler
Ben Adam is a freelance director and designer who works under the name Broken Antler. His clients include Jaguar, BBC1, IBM and Vodafone. www.brokenantler.co.uk

Time needed
1-2 hours, not including renders

Skills
- Work with linking expressions
- Apply the Shatter plug-in
- Use 3D in a composition

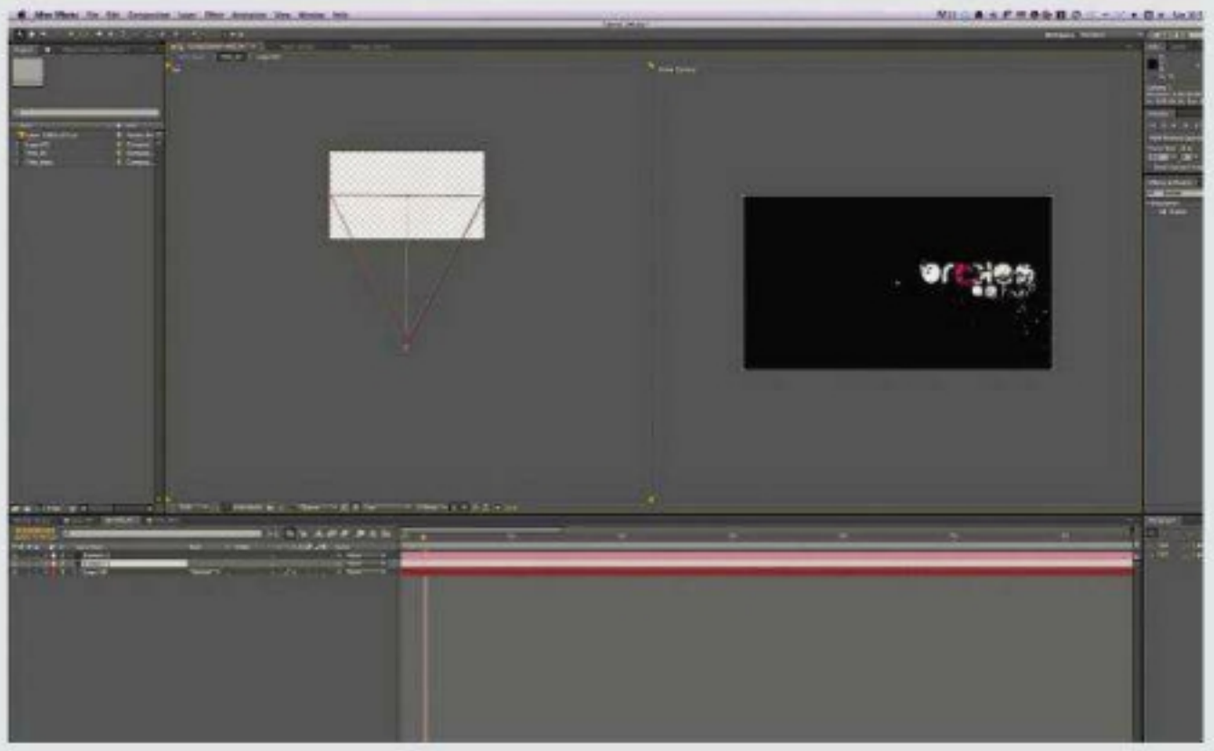


03—— I went for a smashed glass look to start with – see my tip for an in-depth look at the different options available. I set: Shape>Pattern>Glass, Repetitions: 75, Extrusion Depth: 0, Direction: 0x+48. I then set Force 1>Position>1120, 360, Radius: 0.52, Strength: -2.30; Force 2>Position>1062, 250, Radius: 0.39; and Physics>Mass Variance: 66%, with Gravity set to 0.



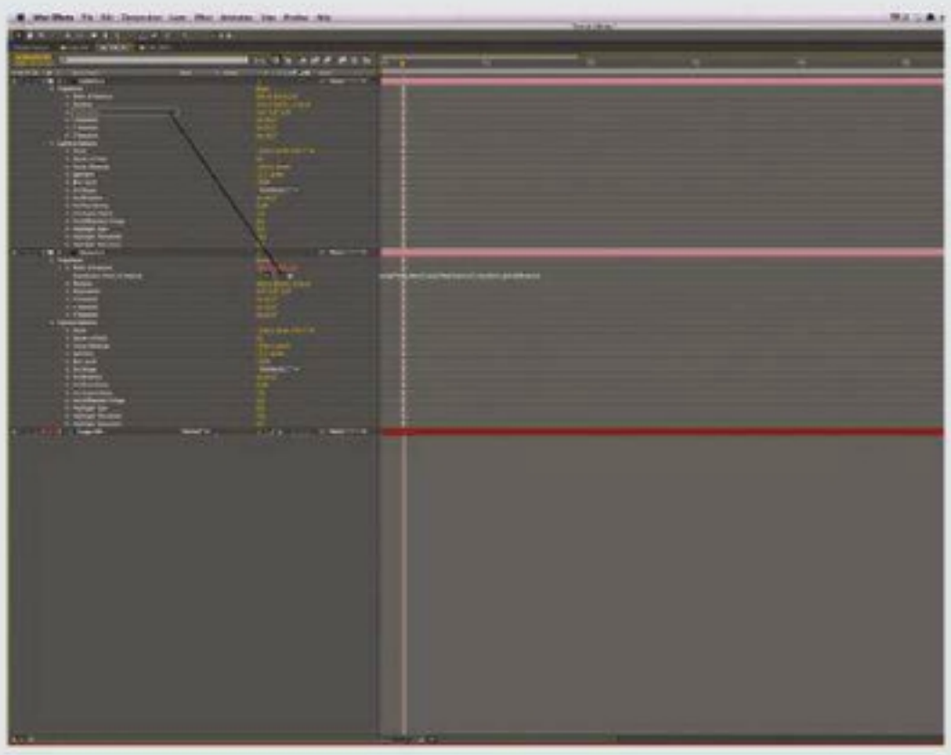
04—— Now add a camera. In the Shatter effect turn the Camera System to Comp Camera. This effect is now 3D and is reacting to your camera. Scrub along the timeline to a point where the logo is nicely shattered and move your camera around a bit. The only problem with this effect is that depth of field doesn't work, so we'll cheat. First, slow the animation down (Layer>Time>Time Stretch). I'm going to go with 500 (Stretch Factor). Now we have a comp with a shattered logo.

05—— Create another comp called 'Title_Main', copy and paste the camera from Title_01 into this comp and rename it 'MainCamera'. Now we need to link the cameras together with a little expression. The only time-consuming part is that we need to link each attribute that we think we might alter (I've done everything from Point Of Interest to Blur Level, as this leaves me with the ability to move my camera freely.) The easiest way is to duplicate Camera 1 in Title_01.

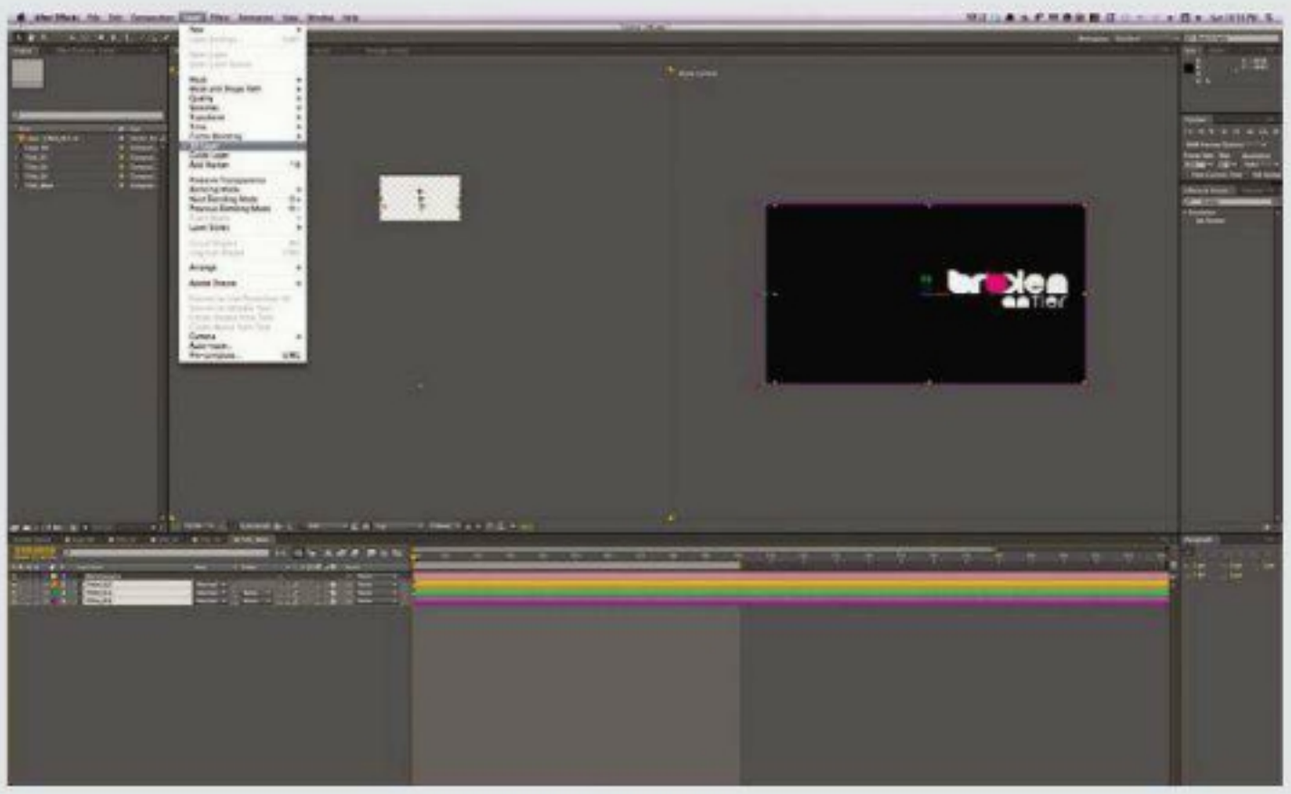


Shatter settings

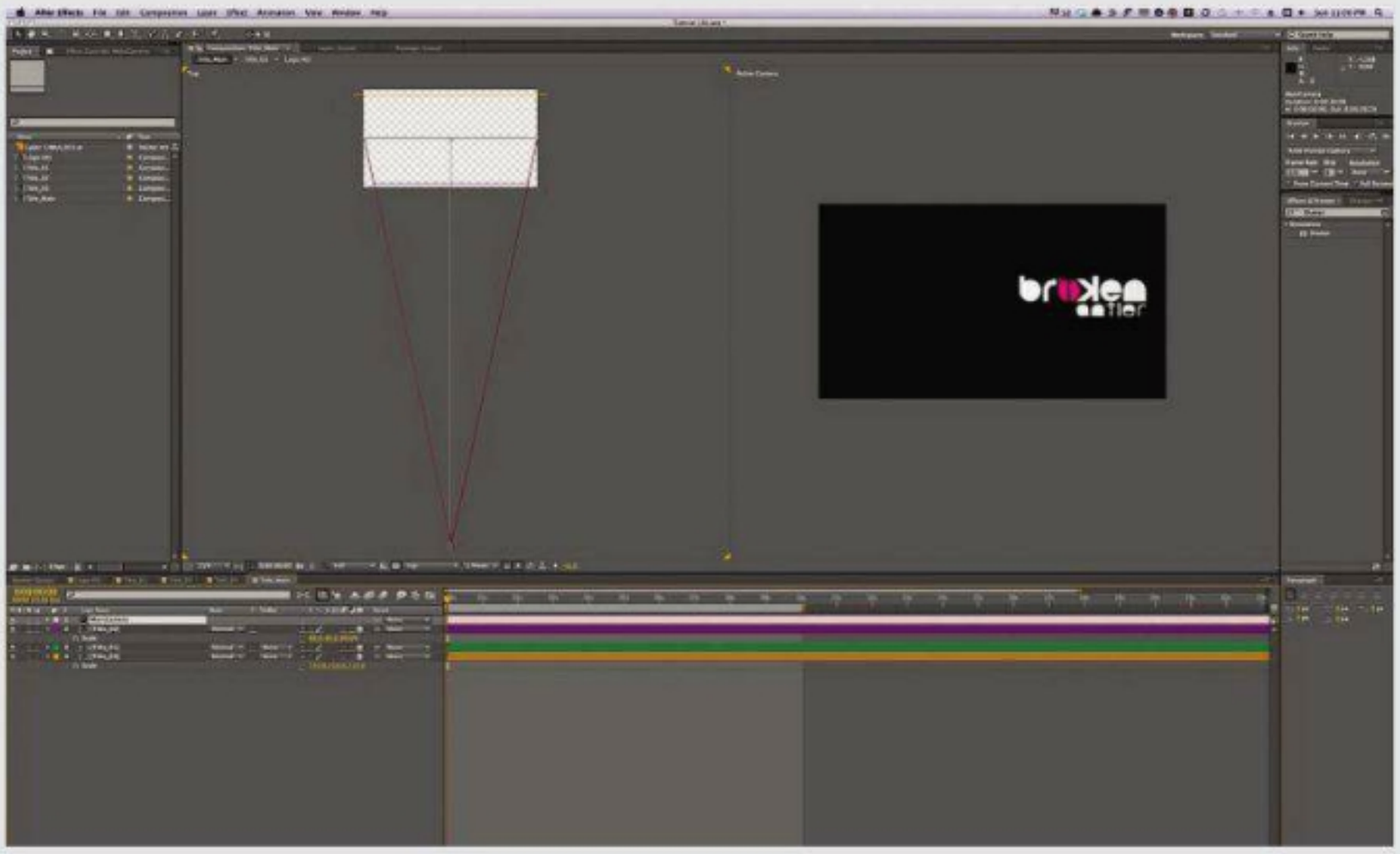
Shape applies to the shape of the shatter. Repetitions is the number of pieces it will shatter into. Extrusion Depth is the depth to which you extrude each segment – 0 is flat; go to 4 and you'll see it becomes thicker. Note that the bigger the Extrusion Depth value the longer the render. Force 1 and 2 applies to the force of the smash: where it starts from, its radius and the strength; and Physics controls the physical aspects of the shatter.



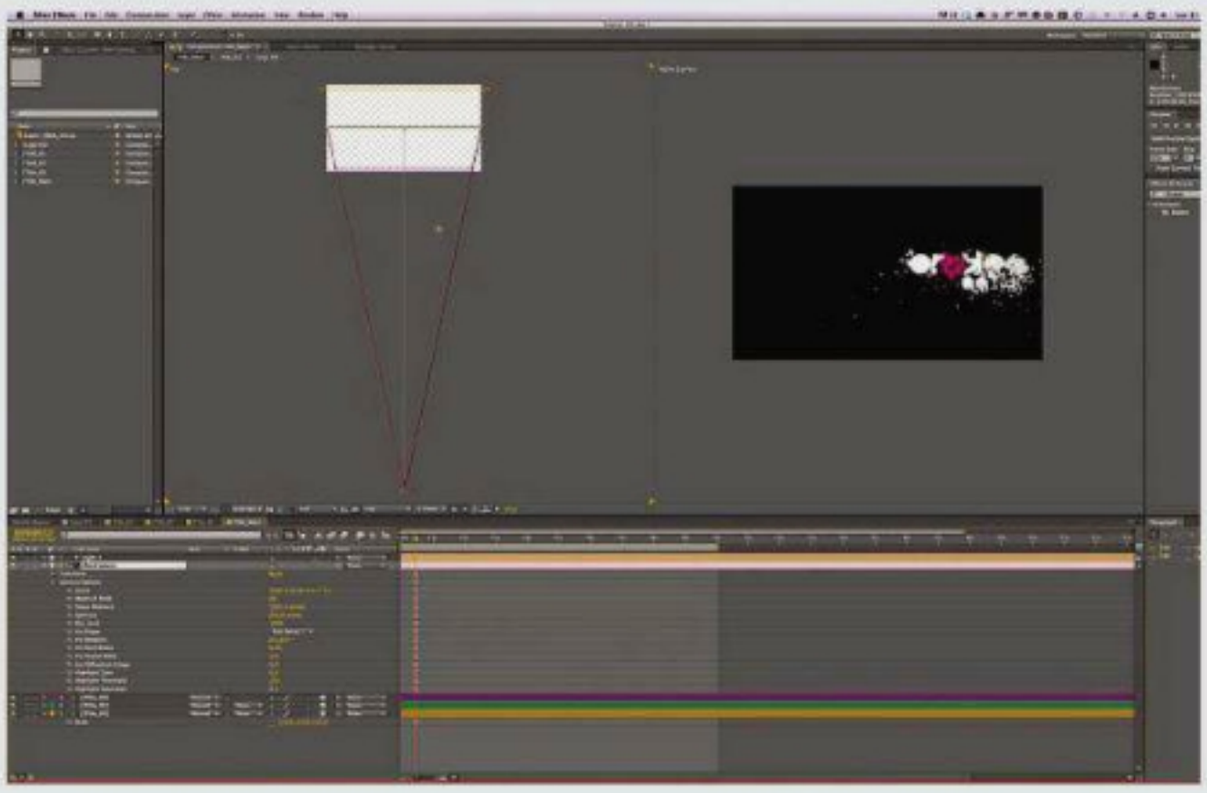
06—— Hit Alt/Opt and click the stopwatch on Point Of Interest under Camera 1, and drag the Pick Whip to Camera 2's Point Of Interest. Now change this comp to comp ("Title_Main") and change ("Camera 2") to ("MainCamera"). Next, do the same for the other settings.



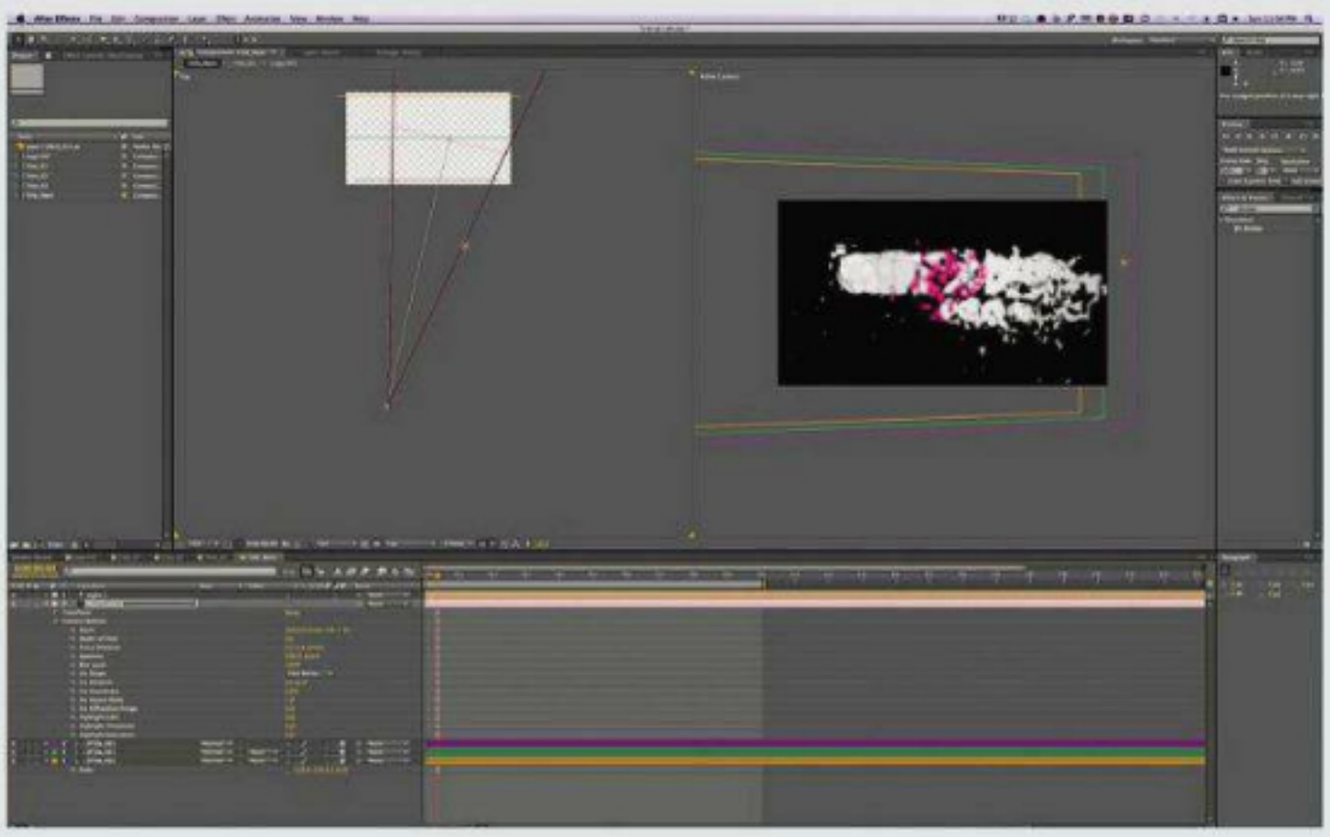
07—— Once you've finished, delete Camera 2. Now let's duplicate Title_01. Next, in Title_02 alter a few of the Shatter settings so that you end up with a different shatter result. Then duplicate Title_02 and do the same again. Now put all the Title comps into Title_Main. Select them all and go to Layer>3D Layer. →



08—— Re-position Title_02 and the Title_03 layer in the z-space, putting Title_02 in front of Title_01 and Title_03 behind Title_01. Using Scale, decrease the Title 02 size to match Title_01 and increase Title 03 to match the Title 01 size, so that there appears to be only one comp.



09—— Now turn on Depth Of Field (under Camera Options), adjust Focus Distance to line up with Title_01 and whack up the Aperture value. I also threw a light in here as well. Try moving the camera, animating its position, experimenting with the focus, animating the light, changing the Shatter settings, adding lens flare, or a particular dust or smoke effect – and render out a bunch of comps.



10—— Lastly, in whichever edit package you prefer, import the renders and cut together a little sting to any music you like. Add an effect like Bad TV, Twitch or Holographix and hey presto.

Visual CV

In pictures: a guide to the career and work of our Technique writers

Broken Antler

The motion graphics master talks through five recent projects...

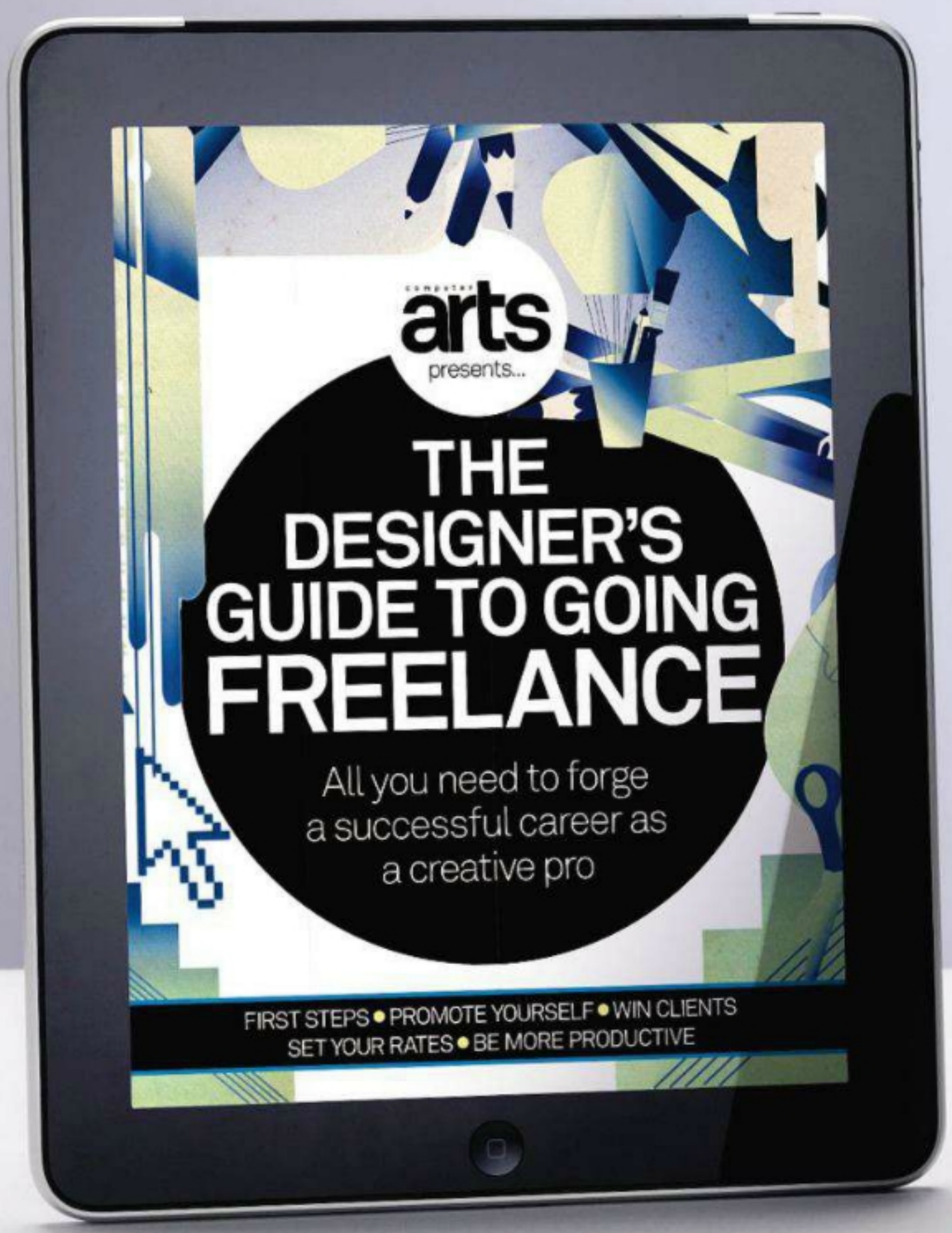
Lost In Space – Civil Music – June 2011
I directed this music video for Starkey. It was shot on green screen and composited in AE. I used Optical Flares, Particular and Twitch and then edited and graded in FCP.

Jaguar Idents – Jaguar – Feb 2011
I've worked on the Jaguar brand for a number of years now. This year I was asked to create idents and little graphic moments to be used across the films, which were produced by Tangerine Films.

Fashion Week Live – IMG – Jan 2011
I directed two films for FashionWeek Live for Brand and Deliver. Both used Trapcode Form and Particular, and VC's Optical Flares and Twitch plug-ins.

City – IBM – Oct 2010
I produced visual effects for five films, as well as a title sequence for this IBM conference. Light streams and explosions were created using Trapcode Particular.

BBC1 Trackers – Aug 2010
I was commissioned by RDF to create the titles and in-show graphics for BBC show *Trackers*, using AE and Illustrator.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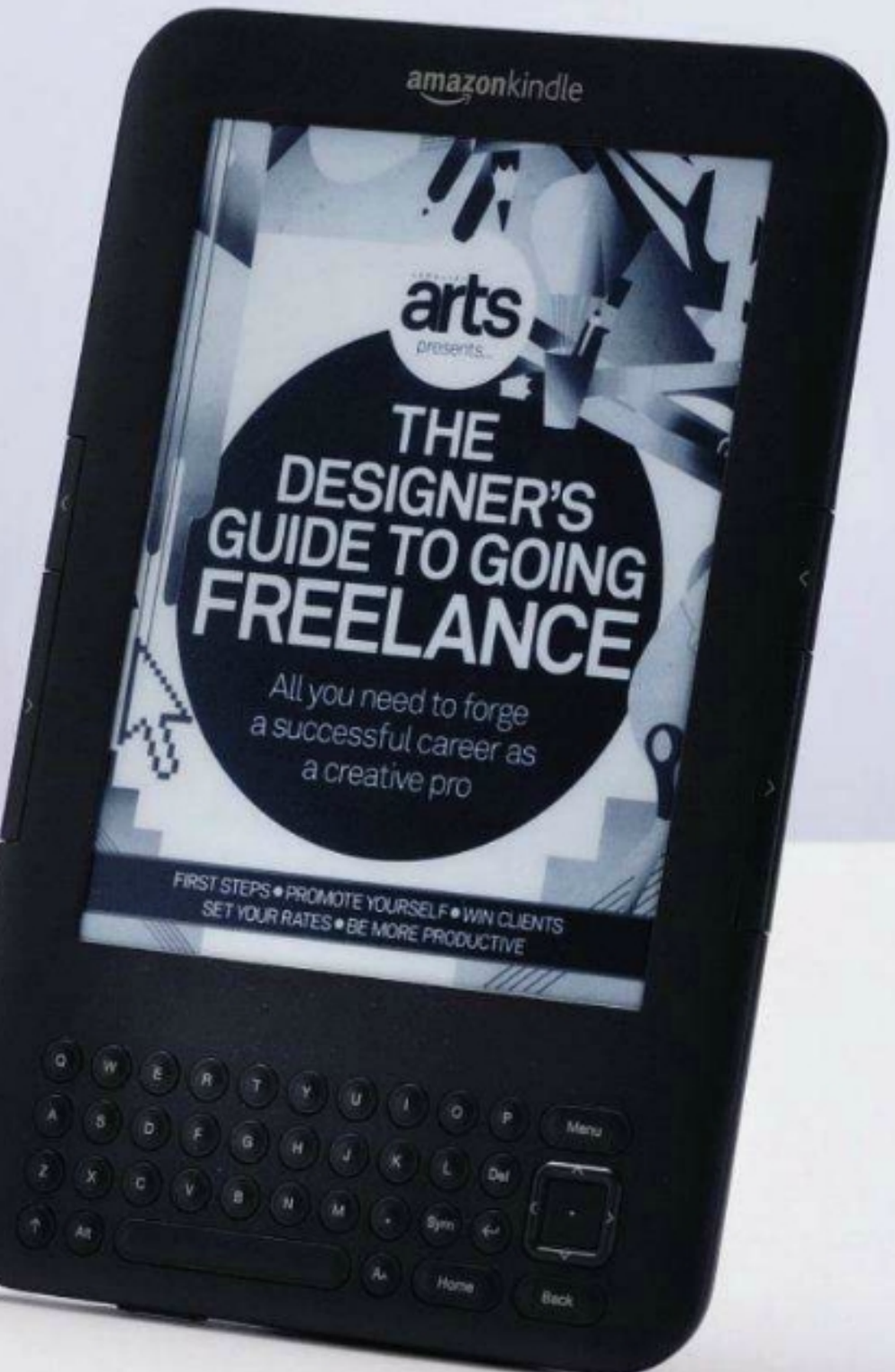
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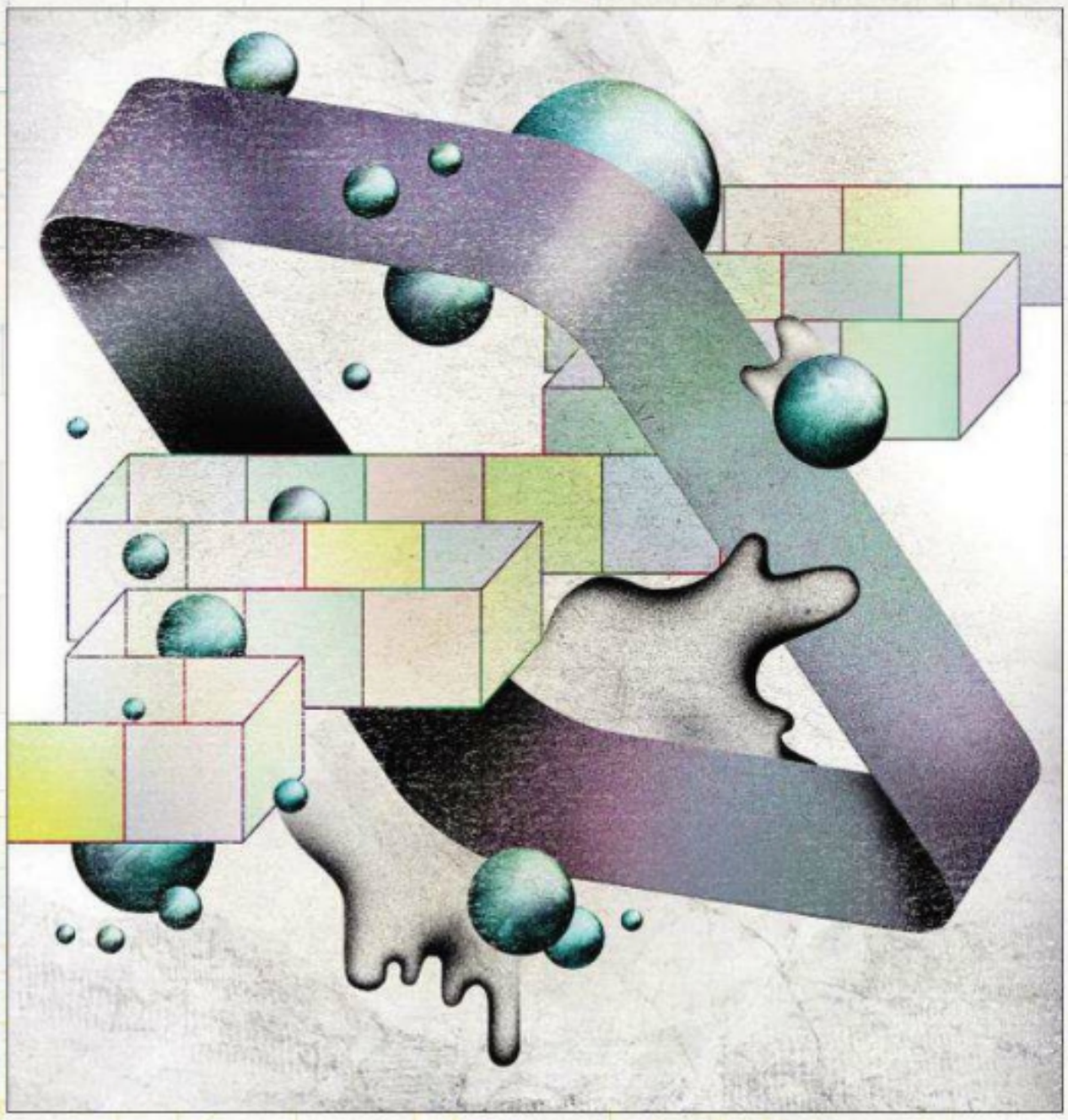


MOTION & ANIMATION TOP 50

Advanced animation and motion graphics skills...

Pro software skills: After Effects

1 RELATIVITY

A handy feature when adjusting or animating layer properties in the After Effects timeline is the Edit Value menu, which can be accessed by Ctrl/right-clicking on the value of a property. The useful thing about this menu is that you can adjust the position and size of an element using a percentage relative to the composition.

2 PARENTING SKILLS

Combining After Effects' null objects with parenting functionality creates a powerful team. By doing so you can move a couple of layers together without having to change the animation of the individual layers. It's also great for camera animation: to animate a rotating camera, just create a new null (turn on 3D), parent the camera to it, and then animate the null's rotation.

3 USE GUIDE LAYERS

It's common to be asked to revise a project (to re-time a keyframe animation at specific points, for example). To do so, it helps to be able to see a render of the previous revision. Place the previous render in your working comp, Ctrl/right-click it and select Guide Layer, then resize the guide layer to be a small window in the corner of your comp. Since it's a guide layer, it won't be visible in your render.

4 PRE COMP YOUR PRE-COMPS

Try to pre comp all the elements of a project that you think may have the potential to change – be it colour, shape, design and so on. This way you can avoid revolving your entire animation around a risk asset, and minimise the risk of ruining the animation if it then requires replacing – useful with clients prone to changing their minds at the last minute.

5 MORE RUSHES, LESS HASTE

Experiment with this workflow for creating lots of graphic rushes: first create a 3D composition that enables you to add loads of cameras in the scene, and then render out the composition length from different camera angles, animating cameras around the scene and seeing what you get. You can then edit all your rushes together.

6 ASSET REPLACEMENT SCHEME

To replace an asset on the timeline with another, first highlight the asset on the timeline, and then highlight the asset in your project window. Hold Alt/Opt and drag it from your project window to the timeline – release, and it's replaced.

7 COLOUR CO-ORDINATION

Link colours to layers and comps so that you can quickly and easily remember what they are without even reading the layer name. Colours that work best in terms of being loud and easy to find are bright green, white, hot pink and cyan. These can be the layers and comps that you'll use most frequently.

8 MULTI-PASS

There are lots of tricks for speeding up your render queues. A simple one is to select a completed render in the Render Queue window, then press Ctrl/Cmd+Shift+D to duplicate the item in the queue with exactly the same render settings and output destination. You can also add extra output settings to a render, making rendering multiple formats such as a movie and image sequence twice as fast. In the composition menu, pick Add Output Module.

9 IMAGE SEQUENCES

Post-production uses a lot of image sequences, but Finder/Windows and AE can be very slow to process them. To combat this, there's a script called Immigration (available from www.aescripts.com) that makes loading and replacing multiple image sequences much simpler. It treats image sequences as one file, creating a much easier interface, and even checks for missing images in your sequence.

10 RAM PREVIEWS

We've all been there – you've waited 10 minutes for your RAM preview to load, then you accidentally nudge a layer and it's gone. Add Ctrl/Cmd to your RAM or Shift+RAM preview and AE will prompt you to save your preview once it loads. There's no shortcut, but you can easily find it in Composition> Preview>Save RAM Preview.

11 SET UP YOUR WORKSPACE

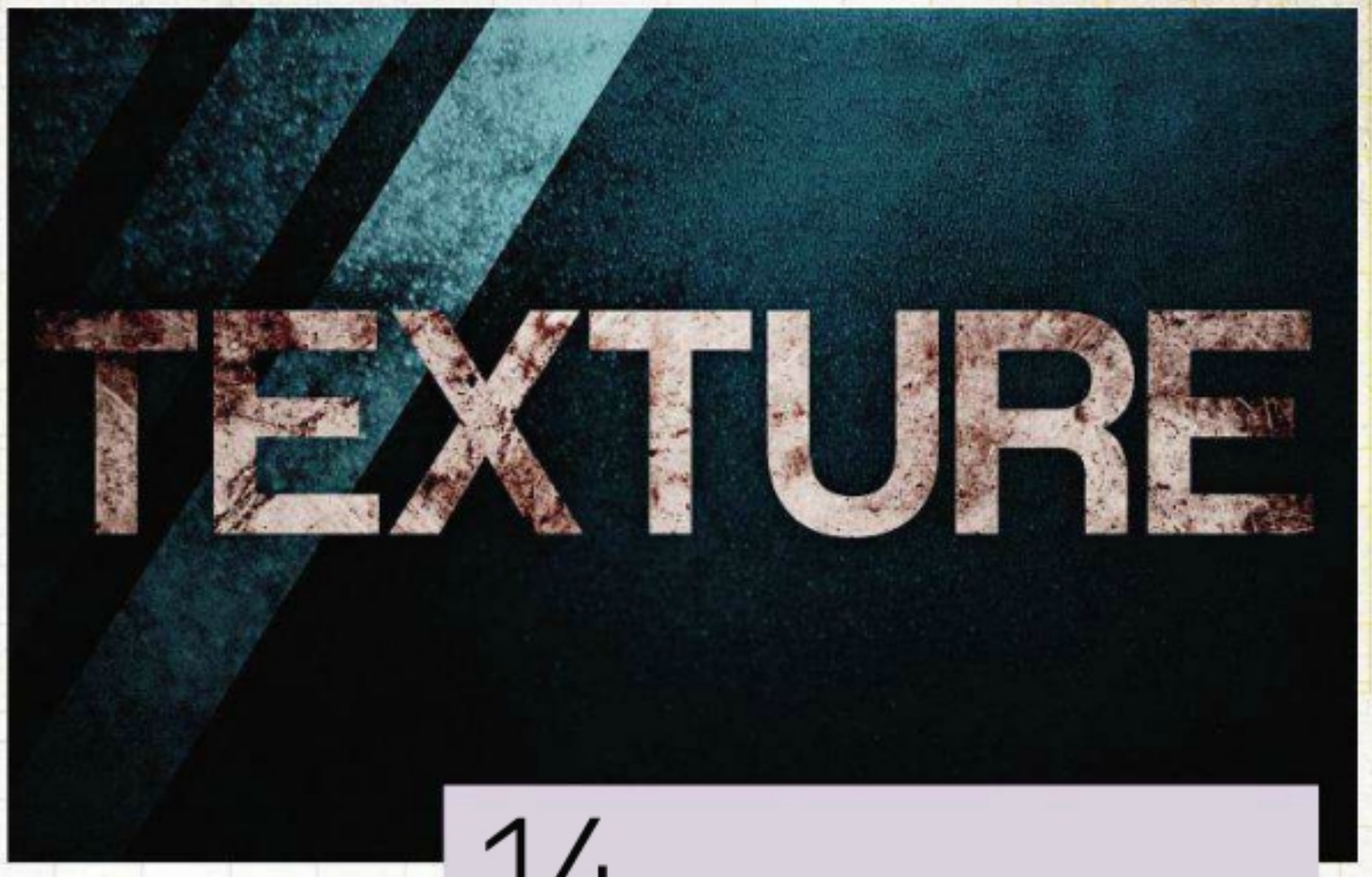
Configuring After Effects correctly can improve your performance and shorten your render time, which is particularly important if you have a short deadline. On Adobe's forum you can find tonnes of information on how to do this correctly. Depending on the RAM/hard disk space you have, doing this can improve your performance by up to 30 per cent.

12 CUSTOM ANIMATION CURVES

Don't use preset animation curves – try to set up your own curves for every keyframe. This will do two very important things: firstly, it will give the animation your own style, making it unique. And secondly, it will also give you much broader possibilities in terms of the animation itself. Even if it's just one object moving from one place to another, it will be different from the standard animation.

13 THE BACKGROUND RENDER

Download this from www.aescripts.com/bg-renderer. This can let you have up to 10 simultaneous renders cranking at the same time. It also enables you to render your Render Queue in the background while you continue working in After Effects. In addition, the pro version can also notify you via email, SMS or a push notification on your iPhone.



14 TEXTURES

Utilise textures and gradients. Many beginner motion designers will simply animate with flat shapes and text. Add some subtle gradients and vignettes to your composition with masked solids or the Ramp effect, or use textures with – or as – track mattes. This can go a long way to polish a design: it adds interest, helps separate elements, and focuses the eye.

15 SCRUB QUICKLY

Another simple tip is to hit Shift+Page Down to move 10 frames forward, or Shift+Page Up to move 10 frames back. This is a really quick way to scrub through your timeline without touching anything. AE is feisty: the less you touch it, the more you get out of it. Be gentle and patient, and you'll get what you want.

16 SEEING IN COLOUR

Get better control of your colours. Try setting up a comp with colour controls (Effects>Expression Controls>Colour Control), renamed for various elements – 'Titles', 'Price Points' and so on. You can then link fill effects or other colour pickers back to that comp with an expression such as 'comp("colour Control").layer("colours").effect("Titles").colour'. Now if a client changes their mind, you can easily change colours across all the elements.

17 GOOD PARENTING

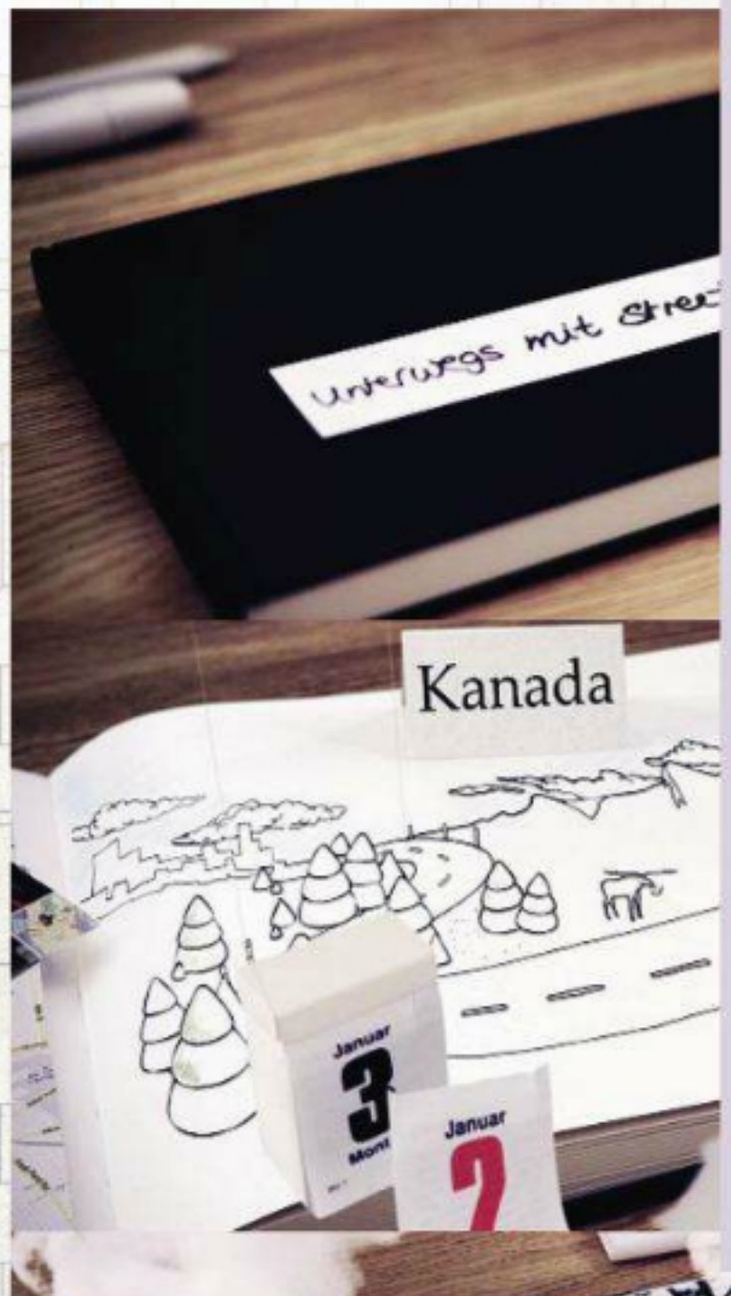
Using 'parent' as a layer selector is often overlooked in expressions. It's a great way to dynamically link properties based on the layer's parent. For example, you can use '(this.index – parent.index)' to know how far away the parent is in the stack to drive a calculation. Another benefit is copying and pasting – layers retain the correct relationship in the expression, instead of linking back to the original layer (such as 'thisComp.layer("Null 1")'), which using the Pick Whip will do.

18 MATE STEINFORTH'S TOP TEN PART 1

Here's designer and director Mate Steinforth's top ten ways to work better in animation production – inspired by Fischli and Weiss: 1) Blur it, glow it, grain it, ship it. 2) There is no magic button. 3) Don't let the tool control you, but learn to control the tool. 4) It is important to set up your scenes for greater flexibility. Aim to make changes as easy as possible. 5) Easy on the glow!

19 MATE STEINFORTH'S TOP TEN PART 2

6) Knowing the technique is just the beginning, 80 per cent is communication. 7) Embrace the process. A piece of work is never done, it's just the basis for discussion. 8) Knowing how to draw is not necessary, but it certainly helps. 9) Read *The Art And Science Of Digital Compositing* by Ron Brinkmann 10) Reference is King!



20 GIVING GOOGLE SOME STREET COLOUR

This piece, created by Mate Steinforth (http://mateuniverse.com) was designed to give viewers a tour of the most impressive sights on Google street view. "We used After Effects to bring together all the rendered Elements and combine them with the stop-motion Elements," says Steinforth. "We shot on a Canon 7D with the Dragon Stop-motion Software, then used Sapphire's Deflicker to reduce the light changes. Neat Video is great to reduce grain. After putting together all the elements from 3D, we also did the colour grading in After Effects. Putting a blue solid layer with a very low opacity in the exclusion mode gives the whole image that trendy hipster feel."

21 MARKING TIME

Rhythm is very important in making your composition feel complete and consistent. Even if you don't hear the track in the end, your piece will feel much more cohesive if you use one as a guide while you're animating. You can add an audio layer and then hit LL to see the waveform, or play a RAM preview and hit * to add composition markers on the fly to help you position the keyframes.

22 AVOID THE EASY ROUTE

Try to avoid presets as much as possible – they can make your work process faster and, in many ways, easier, but the final product will look as though it hasn't received as much effort as it should have. If there's enough time, don't take shortcuts. After Effects is highly customisable so make the effort to create your own presets and interface layout, and get familiar with the Graph Editor so that you can deliver unique results.

23 IMPORT/EXPORT

Exporting 3D data such as cameras, lights and null objects into After Effects is a one-click procedure from Cinema 4D, and works seamlessly with the native 3D system and third party plug-ins. Take advantage of this by linking particle emitters to moving objects in a 3D scene. The lights will automatically be brought in at the right position, making it a breeze to make them feel part of the original scene.

24 EFFECTS CHANNELLING

Try using alpha channels and object buffers to drive effects as well as regular compositing or colour correction procedures. For example, try shining glows or emitting particles from around the edges of 3D objects to give the impression that the effects are coming from behind.

25 TEXT ANIMATORS

Some users still aren't aware of After Effect's great text animation features. The secret is to add animation parameters to a text layer (such as opacity and a dash of position). Then leave those values static and animate the Start Range value (hidden under Advanced). Using this technique, you can create elegant and sophisticated text animations with only two keyframes, and match them easily to voice-overs and camera timings.

26 SMOOTH AND WIGGLE

These two one-word scripts are extremely powerful. Use Wiggle on your camera's orientation to simulate a handheld camera. Even better, set messy camera position keyframes when you're on a tight deadline and then use Smooth to even out the positional and timing kinks in one fell swoop. This can save hours of frustrating bezier adjustment. Check the internet for details on parameters you need to add to these.

27 KEEP IT SIMPLE

Avoid complex animations that feature many variables animated over many layers. These will take forever to set up and are usually messy for the audience because there's too much to focus on. Stick to simple and striking elements that are refined and executed with simple pace and rhythm – it will work every time. Usually, the fewer the keyframes, the better the result.

28 RENDERED GENIUS

For projects with tight deadlines, try doing terminal renders using the AE Render Engine, which bypasses your working After Effects application. The obvious advantage here is that After Effects remains usable during the render, but there are other benefits to it. Using the free AE Render Droplet for OS X sets up your project for multiple render instances. Place any and all comps that need to be rendered in the render queue, and set them up as you usually would.

29 SEQUENCE NOT MOVIE

Try rendering as image sequences (a PSD sequence, for example) rather than QuickTime, so that if your render fails you can resume by frame number. Also, try selecting the Skip Existing Frames option, which is only available when you're rendering as an image sequence. This means that you can save your project without rendering, then drag your AEP file to the AE Render Droplet.

30 MARK IT UP

Markers can be set on the timeline or any layer in a composition to keep projects organised. With a double-click on the marker, you can add a note that appears on the timeline or layer next to the marker. The marker shortcut works even during RAM preview. If you have to animate to a voice-over or a soundtrack, you can play the RAM preview and hit * whenever you need a marker on the timeline.

31 BE CAUTIOUS WITH PLUG-INS

There are really some amazing plug-ins out there. But don't rely them to make your signature style. Potential clients want to hire you because they're interested in what you can do – not what a plug-in can do. They usually know that already.

32 INERTIA EXPRESSIONS

Sometimes it can be difficult to give an object or camera a natural movement using keyframes alone. If you want a movement to end abruptly – but realistically – try using an inertia expression (available at www.motion-graphics-exchange.com). This will give a rubbery, physical movement that will over-extend before your objects reach their resting point. Expressions are versatile, and you can change the frequency and duration of the over-extension.

33 BEYOND EASY-EASE

The goal for any animator is to have smooth, liquid animation. Many people will simply use the Ease In/Out keyframes, which can cause kinks and bumps in animation with more than one keyframe. The trick is to use continuous keyframes. Ctrl/right-click on your keyframe and select Keyframe Interpolation. Under Temporal Interpolation select Continuous Bezier. You can now easily remove any kinks in your animation. →

34 MAKE SURE YOU ADD A BLUR

You always have the option of creating your own selective focus comps by blurring specific elements. For example, if a line of text is animating from the background to the foreground, you can keyframe animate the amount of blur effect on the text. Cinematic blur from real camera lenses always has characteristic 'bokeh'. After Effects offers many different blur effects by default, but not all of them will accurately mimic natural light effects.

35 4-COLOR GRADIENT VIGNETTE

Try using a vignette to add a little texture and realism to your scenes in AE. One way to do this is to add a new white solid layer on top of your footage, then go to Generate effects and select 4-Colour Gradient. Now change the transfer mode to Classic Colour Burn and use an elliptical mask to mark the parameters of your vignette. Simply adjust the four colours until you have something you're happy with.

36 CLARITY

When you're working on a project with a lot of layers, your composition window can easily become cluttered with After Effects interface graphics, such as masks, motion paths and handles. These can make it difficult to see your image clearly, on its own. With one quick shortcut, you can make all of the clutter disappear. Simply select your composition window and hit Ctrl/Cmd+Alt/Opt+U to bring up the View Options panel. Uncheck the Layer Controls box et voilà: you now have a clean view of your composition.

37 TIME REMAPPING

Time remapping can cause footage to stutter when it slows down. But After Effects has a built-in Frame Blending mode that can really help smooth your footage out. Apply whatever time-remap settings that you like to your footage. Once you're done, check the Frame Blending box on your layer (the switch that looks like a film strip.) You'll also want to enable frame blending by clicking on the film strip to the left of your timeline. There can be some undesired artifacts when you use frame blending, but when you're under a lot of pressure it can also save the day.

38 RIGGING

AE's Puppet tool enables you to put joints into flat 2D images and animate them about these fixed points. However, it's not a proper rigging system – as you would get in a 3D application. Try rigging elements using a free system called DUIK (http://ik.duduf.com). This is a 2D rigging protocol for After Effects that is really effective, giving you a complete IK rig.

39 FLYING CAMERAS

The AE camera automatically has a Point Of Interest turned on, meaning that you need two keyframes to control it – one for the camera and one for the POI. If you Ctrl/right-click on the camera layer then choose Transform you can turn off Auto-Orient. This means you have one less thing to worry about. This can be the easiest way to start getting your head around camera moves.

40 CAMERA TO MANUAL

The other problem is that AE automatically gives you a movement curve for your camera: if you Ctrl/right-click on two keyframes, you get a Keyframe Interpolation option. When you start messing about with that in your camera set up, it'll give you a set of automatic curves that never look right. This really throws a lot of people. Turn that off by Ctrl/right-clicking on the camera's keyframes, choosing Keyframe Interpolation and set that to Linear or Bezier, not Auto.

41 ANIMATING STROKES

In After Effects, create a black solid object and paste a circle path created in Illustrator onto this. Apply AE's Stroke effect to the path. From there, keyframe the start parameter from 0% to 100% to animate your circle. This process can simulate handwriting too – outline your text in Illustrator, copy the path and paste it in AE on a solid, and follow the stroke method above.

42 FRISCHLUFT LENSCARE

This is a fantastic plug-in for producing realistic depth of field (DOF) within After Effects. Try using a blend of the Lenscare's Depth of Field and Out of Focus effects to to composite 3D elements with physical results captured on camera. Use Lenscare with your 3D depth pass to create very fast and physically feasible results, which will often surpass the best efforts of the core effects in many 3D and 2D applications.

43 HANDSOME RENDERS

When you've completed a sequence and rendered it out, put that movie into its own timeline and duplicate it. On the top movie add a Hue/Saturation filter to make it black and white. Then add a Levels filter to crunch down the blacks a bit, and finally add a Fast Blur set to about five. Still using that top layer, take your mode to Overlay and bring down the opacity to about 45%. This usually pulls the whole thing together and gives it a little extra oomph.

44 PLUG-IN MASH-UPS

Try using multiple plug-ins, mixing them together to 'muddy' up the CGI renders. Bad TV and Data Glitch are good for extra digital noise; Magic Bullet Looks for heavy grading. It's also worth getting Magic Bullet Mojo, which has some great presets to tweak. Combining plug-ins in different ways can really help to achieve an original look.

45 CAMERA IMPORT

One of the hardest things about AE is the way the 3D environment works – in particular, the way cameras work. If you're used to working with 3D then the handling can seem odd. So try doing your camera set-up in Cinema 4D and import it wholesale into AE. With the latest versions, this process is seamless.

46 ON/OFF EFFECTS LAYER

One tip that works well is using adjustment layers whenever you can and separating your effects out into them. That way you can turn them off and they won't slow your machine down while you're working. Then you just turn them on at render time. This is particularly good for effects that you use regularly, such as Motion Blur.

47 SECRET CACHE-CLEAR

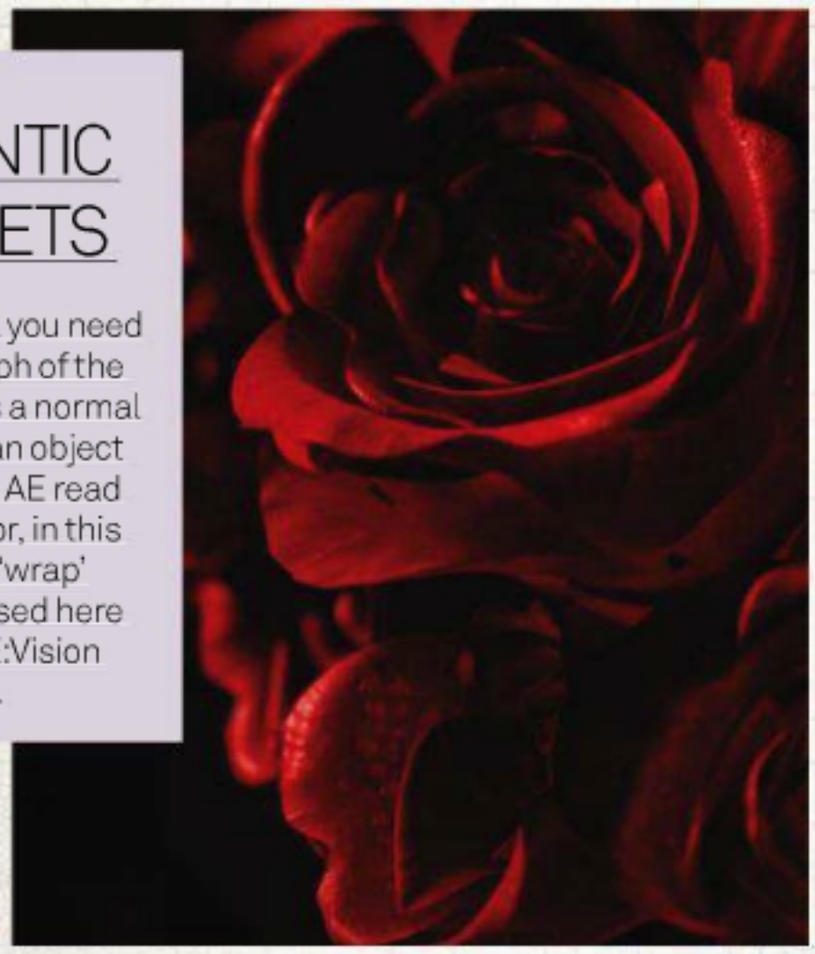
If you're experiencing memory errors when trying to ram preview or rendering then try holding down Ctrl/Cmd+Shift while selecting Preferences>General. At the bottom of the list, select Secret and you'll have access to disabling the layer cache and frame purging during rendering.

48 DESIGN FIRST

It's important to always incorporate a strong sense of design while creating any 2D animation – this can easily fly out of the window while you're concentrating on keyframes and nodes. This will be the difference between an average attempt and an astounding piece of work with rich colour, depth, and perfectly graded and incorporated 3D elements.

49 ROMANTIC DROPLETS

To recreate water droplets, all you need is a black and white photograph of the droplets you want to use, plus a normal pass rendered out of 3D and an object ID map. A normal pass makes AE read your flat render's 3D surface or, in this example, gets the droplets to 'wrap' onto the leaves. The plug-in used here to map is RE:Map from the RE:Vision Effects (www.revisionfx.com).



Thanks to: Ben Adam (Broken Antler), Fernando Cabestrany (Luxoom Shanghai), Patrick Clair, Paul Conigliaro, Paul Dixon, Markus Feder, Nic Freeman (Beautiful Creative), Yaniv Fridman, Matt Frodsham, Max Groff, Neil Grunshaw, Justin Harder, Nicci Hattingh, Thomas R. J. Lockwood, Gabriel Rocha, Monika Rohner, Mate Steinforth, Tom Waterhouse, Chris West and Jonathan Winbush

50 MAKING CHOICES

Sometimes having the right opacity on a layer with a transfer mode makes the difference between looking fake and amazing, so use the snapshot feature in After Effects (the little camera icon at the bottom of your footage window) extensively. With this feature, you can handily compare the same frame with different effects applied to it.

After Effects CS5 or later, Trapcode Particular

Green screen shots made simple

Ben Adam shows how he composited one of the shots from the Starkey music video 'Lost In Space'.

In this tutorial, which uses a scene from Starkey's latest 'Lost in Space' music video, I'll show you how to take footage from a green screen studio and quickly composite it into your projects.

The techniques I used are relatively simple – but very effective. I took a locked-off camera shot from a green screen studio and attached it to a camera. Then, by applying some expression sliders I quickly added a realistic camera move and shake to the shot. You'll find the files you need to complete this tutorial at www.computerarts.co.uk/aeproskills

I've also used Trapcode Particular – a trial version of which can be found at www.redgiantsoftware.com.

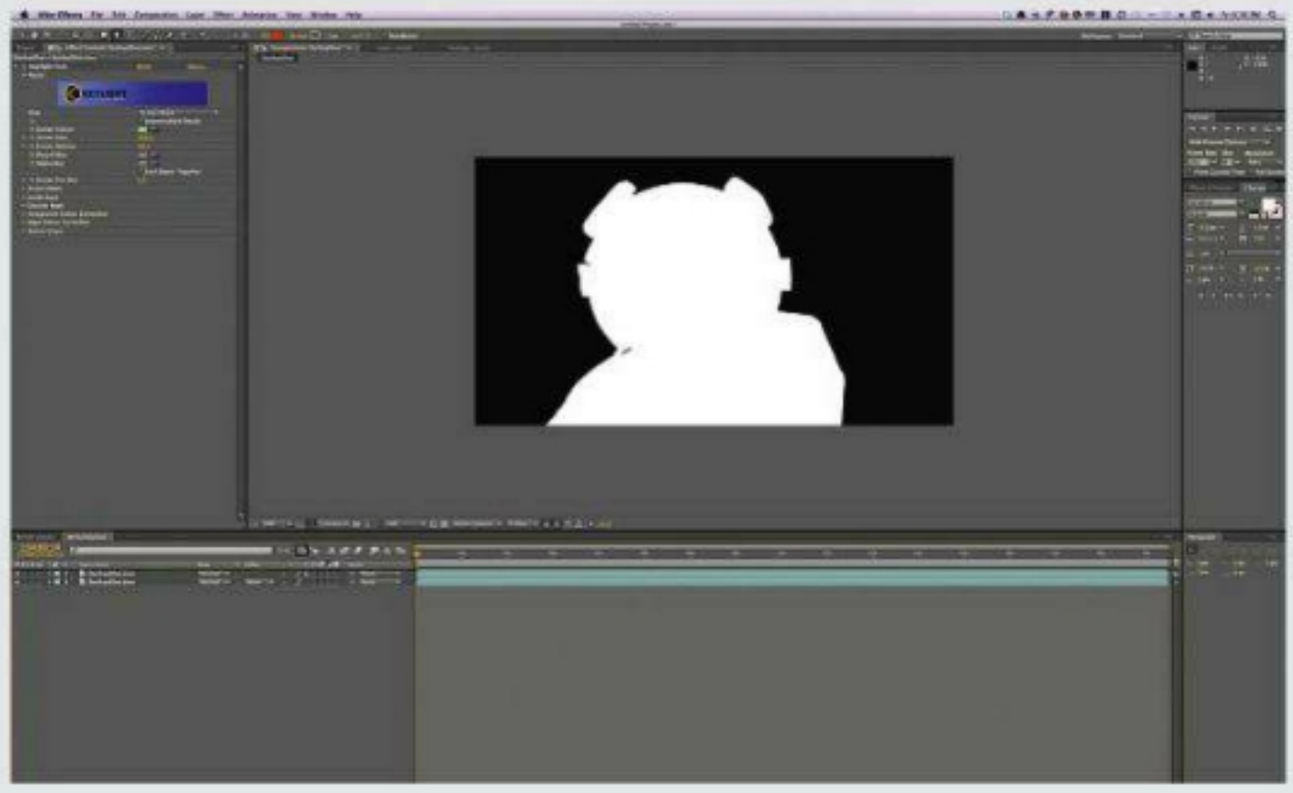
Broken Antler
Ben Adam is a freelance director and designer who works under the name Broken Antler. His clients include Jaguar, BBC1, IBM and Vodafone. www.brokenantler.co.uk

Time needed
5-6 hours

Skills
- Using Keylight to create a luma key
- Add slider expressions to a camera

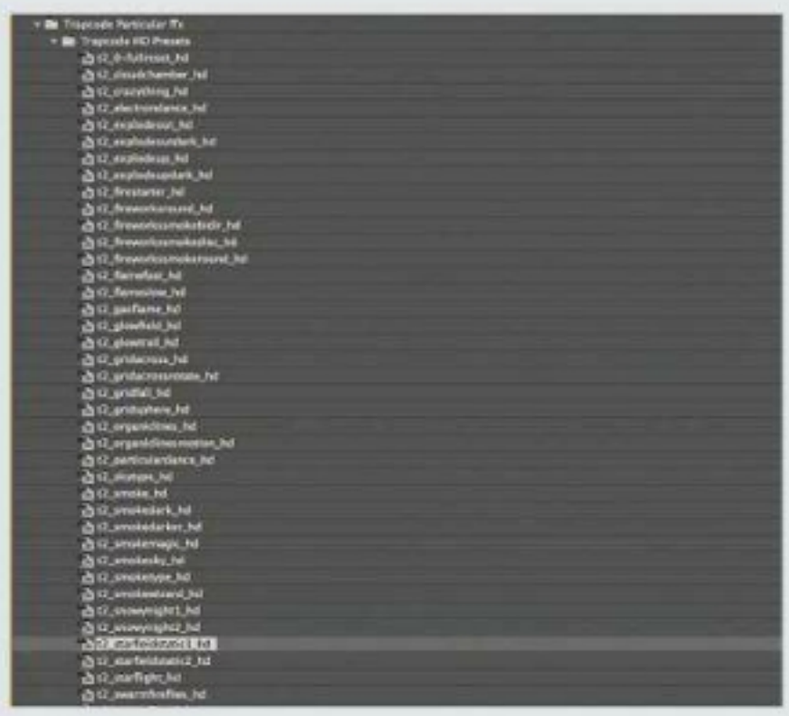
01 Import the 'StarkeyShot' from the URL in the intro text and make a new composition with the same dimensions. The quickest way to do this is to drag the shot down to the 'Create a new composition' icon at the bottom of the Project window.

03 Open up 'Screen Matte' and adjust 'Clip Black' and 'Clip White' until you have a solid black for the background and Starkey is solid white. Then adjust your 'View' to 'Intermediate Results' and bring down the 'Screen Shrink/Grow' to remove the thin green line around the outside. Adjust the 'Screen Softness' a bit to feather the edge. Now lets go back to 'Final Results' in the 'View' tab.



02 Watch the footage through and draw a mask around the area you know Starkey won't move into. We need to key the green from this shot. I use Effects>Keylight to start with to see what results I get. Use the picker for 'Screen colour' and pick a bit of green from the shot. Then go to 'View' and change 'Final Results' to 'Screen Matte'. Here you can see what is keying (the black areas) and what is solid (the white areas). What we need to achieve is a solid black and a solid white, to get the best key.

04 You'll notice that Starkey's colour has been saturated and the shot is very noisy. So lets duplicate the shot and remove Keylight from the bottom layer. Turn your Keylight>View to 'Screen Matte' on the top layer and set the bottom layer's 'Track Matte' (TrkMat) to 'Luma Matte'. Now we have a nice crisp key and the shot of Starkey is its original quality.

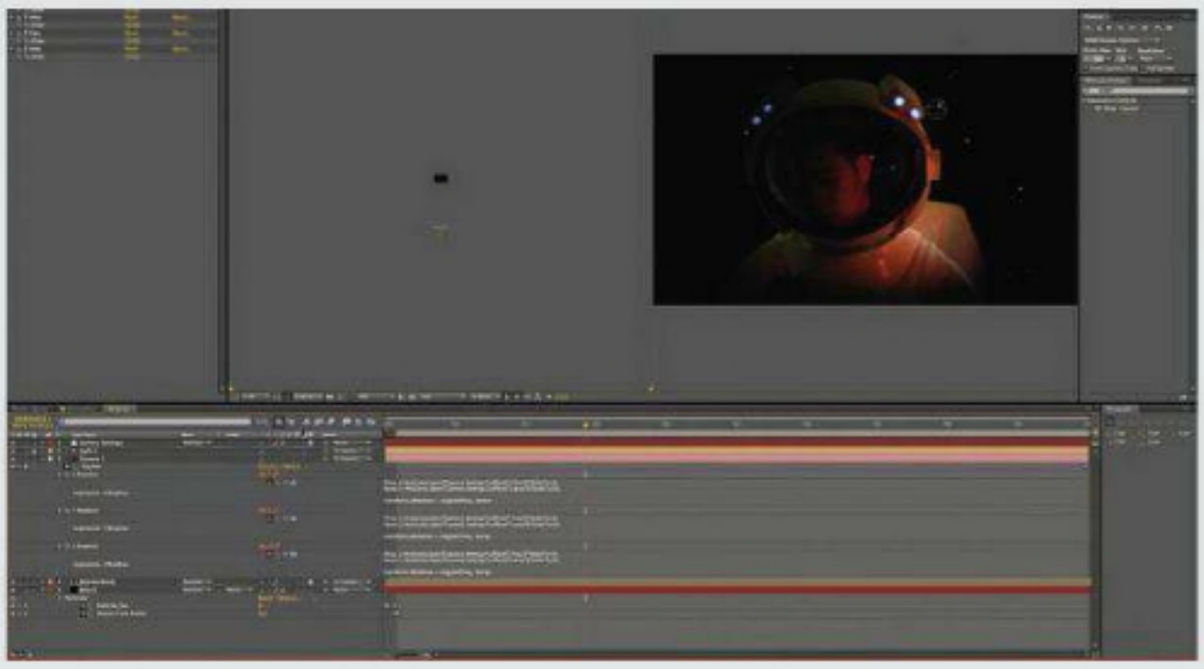


05 OK, lets build our scene. Make a new comp and create a new solid and call it 'Stars'. Now we're going to add Trapcode Particular to this solid and use a preset. Go to the Effects & Presets panel and then Animation Presets>Trapcode Particular> Trapcode HD Presets and add t2_starfieldstatic1_hd to the solid. You'll notice 4 frames in the star explosion freezes, we want our sequence to start here, so hit the B key, which adjusts our work area.

→

06 Let's bring Starkey into this shot and turn him 3D. Then add a camera, a Null and a spotlight. Link the camera to the Null. Adjust the light a bit and then link both the light and 'StarkeyShot' to the camera. Now with the camera selected go to Layer>Transform>Auto-Orient... and make sure you turn Auto-Orientation off.

07 Lets add some animation to the camera. First a basic move. Add a keyframe at the beginning of the work area and move the camera towards you in Z-space. Now add a keyframe at the end of the composition and move the camera away from you in Z-space. You'll notice you've run out of stars – so let's fix this. Select the 'Stars' layer and hit U, which brings up the keyframes used. Move the Physics Time Factor keyframes to end at the start of our work area and move the last keyframe on Particles/sec to frame 3. Double click Particles/sec first keyframe and up it to about 400000 and under the Emitter tab up the Velocity to 30000. Change the Emitter Type to 'Box' and increase the Emitter size X and Y to 500 and Emitter Size Z to 10000. Now you should have plenty of stars.

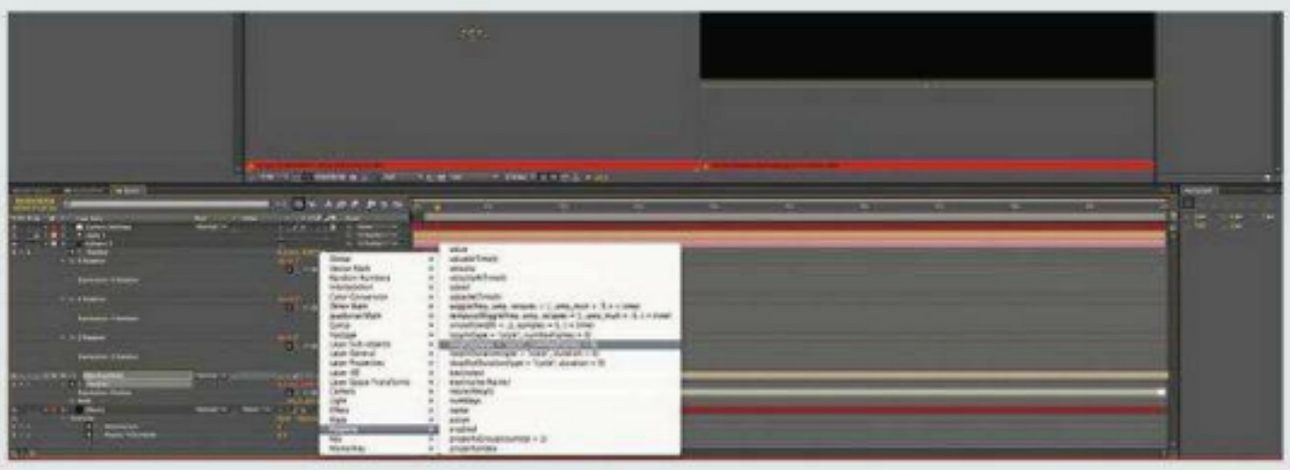


08 Now we have Starkey moving through space, but we need some camera shake. In Effect>Expression Control, add a Slider Control to the Null and rename the Null 'Camera Settings'. Duplicate the Slider Control 5 times so you have 6. Lets label them in this order; 'X freq', X amp', 'Y freq' and 'Y amp', 'Z freq', 'Z amp'. Now we need to add an expression to all the cameras' rotations. Alt/Opt+click the stopwatch next to X rotation and add this expression:

```
Xfreq = thisComp.layer("Camera Settings").effect("X freq")("Slider")/10;
Xamp = thisComp.layer("Camera Settings").effect("X amp")("Slider")/10;

transform.xRotation + wiggle(Xfreq, Xamp)
```

Do the same for Y Rotation but replace all the 'X's for a 'Y' and the same for Z Rotation, but replace all the 'X's for a 'Z'.



09 Now we have control of how much our camera shakes about. Play around with the Slider settings – you can also adjust the numbers in the expression for a smoother camera shake. So for example up the 10 to 100 "("X freq")("Slider")/100;".

But we need Starkey to have a bit of movement, too. Scale Starkey up to 105%. At the beginning of our work area add a position keyframe, move two frames and move him up a bit and then move two frames and copy the first keyframe and paste. Now Alt/Opt+click the position stopwatch and click the Expression language menu (the arrow next to the Pick Whip) and choose Property>loopOut(type = "cycle", numKeyframes = 0). Now the simple movement we've added will loop. You can make this movement as complicated as you like, just make sure the last keyframe is the same as the first to get a loop.

10 Time to grade the shot and add some more effects. I used Trapcode Particular to make a 'spacey' sort of smoke atmosphere. I also tracked the lights and added some flares (I used Optical Flares). Add some motion blur to the camera and there you have it!

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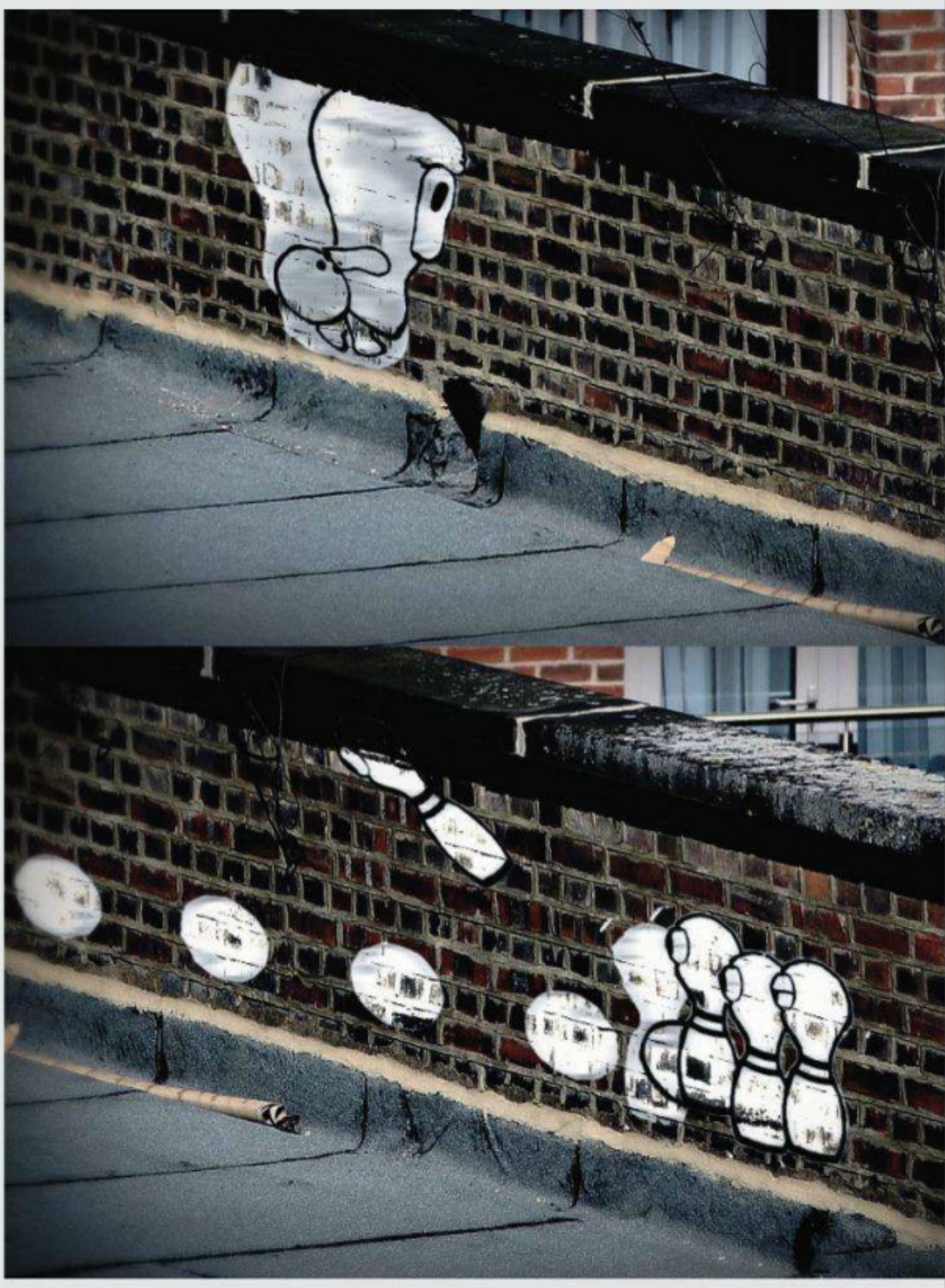
After Effects CS5 or later

Animate characters into real-world scenes

Thiago Maia explains how to incorporate your animations into real-world backgrounds



Have you ever seen a commercial where an animated character is painted onto a real background and wondered how it was done? Using a brick wall example, I'll show you the techniques needed to animate a character into a real-life scene – without making a mess or getting your hands dirty with paint. I'll also share some tips for making your character seem as though it has been painted directly onto its background.

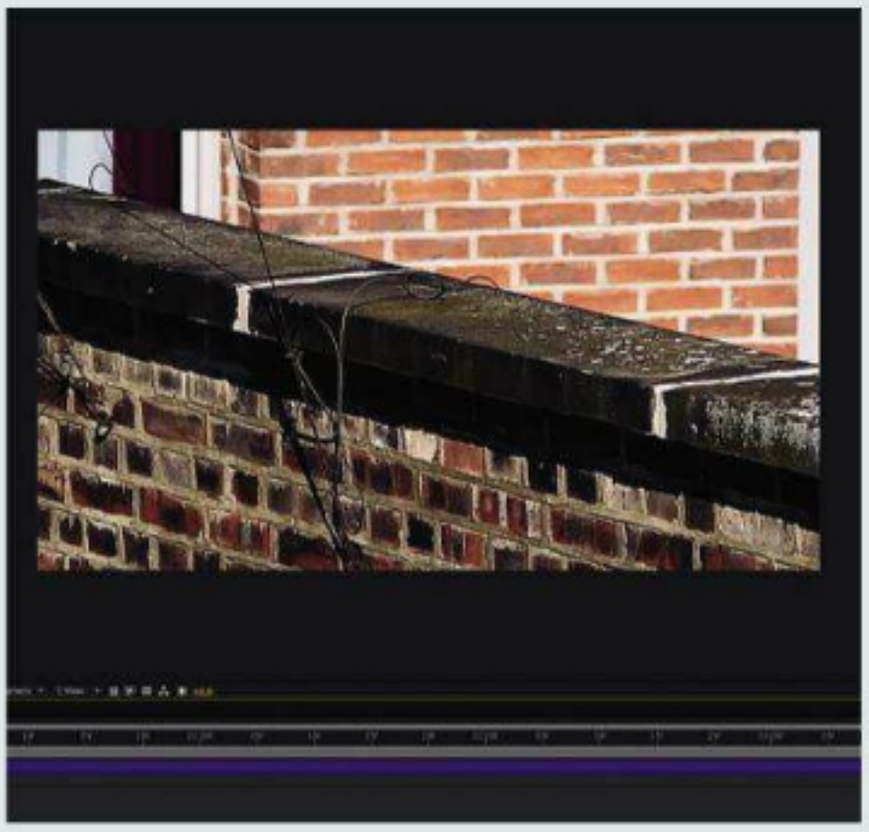
For this tutorial we will be using After Effects and some composite tricks – such as blending modes, alpha mattes and simple expression techniques – to achieve a realistic look in your animation. Once mastered, you'll be able to apply the same processes to your own character animations and to more complex projects as well.

Thiago Maia
Thiago is a director and animator based in London. After working for clients including Virgin, BBC, Nickelodeon, Nokia and Sky, he opened his own studio, Cake. He's also co-founder of animation and design event/blog SeeNoEvil.
www.thiago.tv
www.eatcake.tv

On the disc
You'll find all the files that you need to follow this tutorial in DiscContents\Resources\Tut_Animation

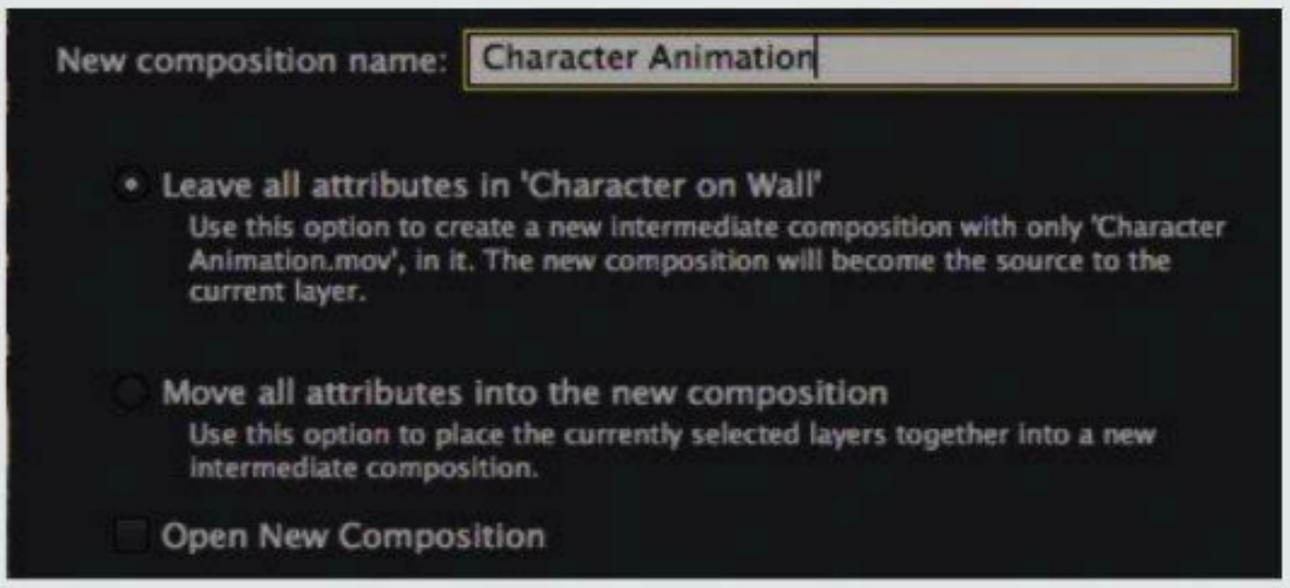
Time needed
2-3 hours

Skills
- Create basic expressions
- Use blending modes and Track Matte functionality
- Add animation to a real image

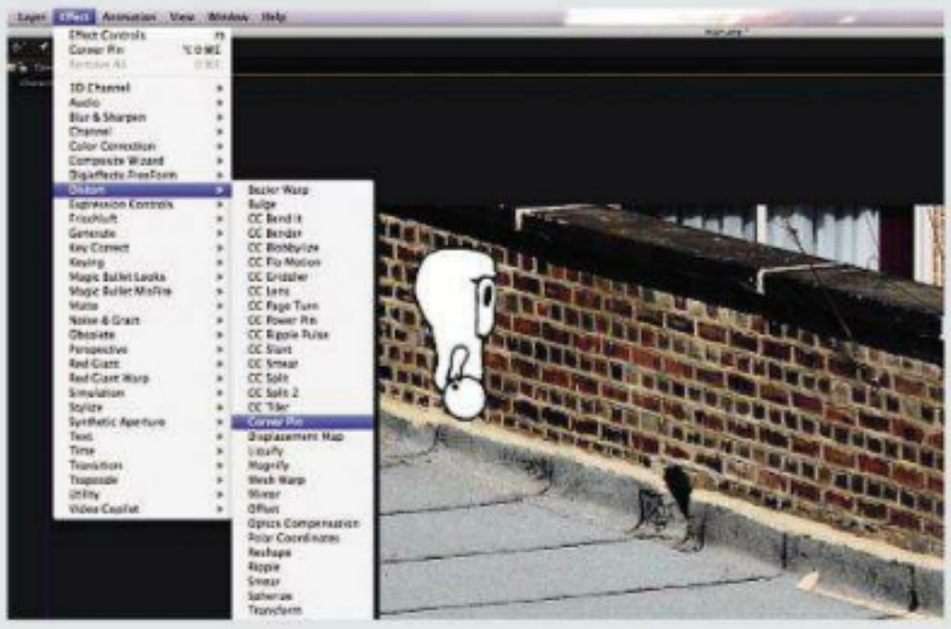


01 Open After Effects, copy the disc files onto your computer and open main.aep from the After Effects folder. Create a new composition at 1024x576 pixels, 25fps and 3 seconds long, and name it 'Character On Wall'. The size and frame rate is important as we'll be working with television resolution. When you're ready, drag background_plate.tif and Character_Animation.mov from the Assets folder in the Project panel over to your timeline.

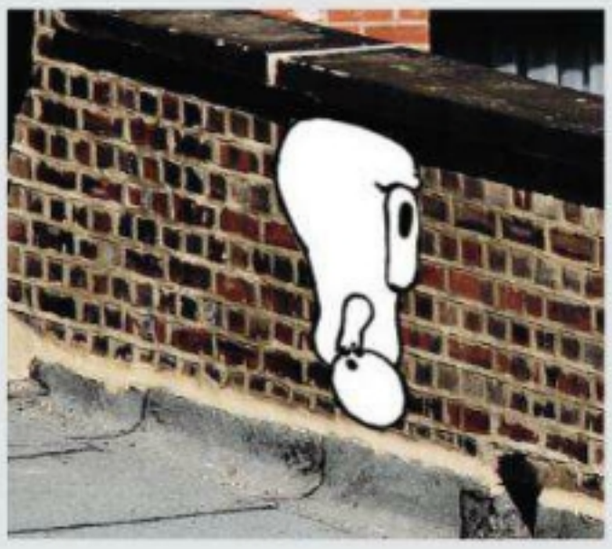
02 Next, we will scale background_plate to about 50% (keyboard shortcut: S) and change the position of it so we can see the wall where we will add the animation.


New composition name: Character Animation
Leave all attributes in 'Character on Wall'
Use this option to create a new intermediate composition with only 'Character Animation.mov', in it. The new composition will become the source to the current layer.
Move all attributes into the new composition
Use this option to place the currently selected layers together into a new intermediate composition.
Open New Composition

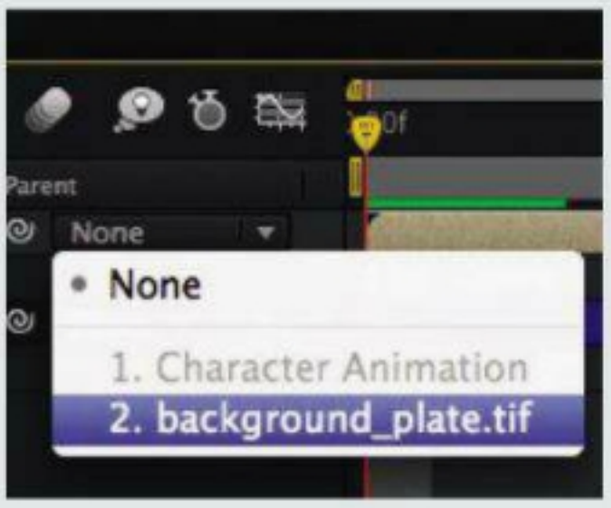
03 Let's pre-compose the Character Animation.mov layer (Ctrl/Cmd+Shift+C). Leave the option 'Leave all attributes' in "Character on Wall"' selected, and change the name to 'Character Animation'. It's important to pre-compose the animation, so in the future we can change the animation without loosing everything. But before we move to the interesting part, let's scale the comp to about 70%, so we can fit it to the wall.



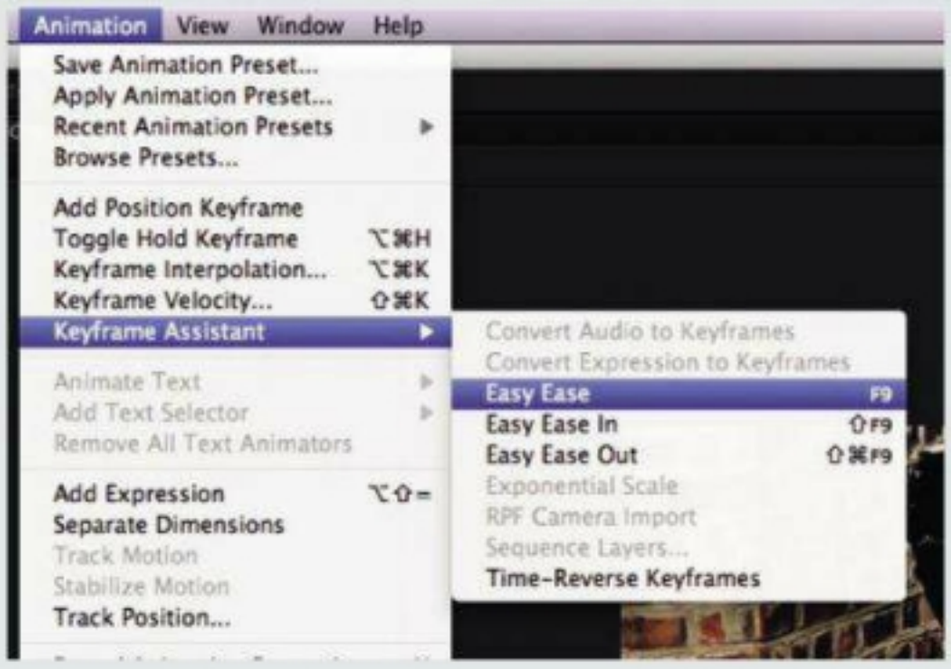
04 With Character Animation selected, add a Corner Pin effect (Effects>Distort>Corner Pin). Corner Pin will add one pin in each corner of the layer. We will change only the position of the Y axis of each pin. You can use the lines of the brick wall as a reference to have the pins on the same level. It's really important to have the pins aligned on the same line of the brick wall otherwise the distortion won't look right.



05 Now that we have the animation at the right angle, we can change the position of background_plate.tif layer to your preferred initial position for the start of the video. We can also change the position and scale of Character Animation to fit it nicely to the frame. For my project, I scaled Character Animation back to 90%.

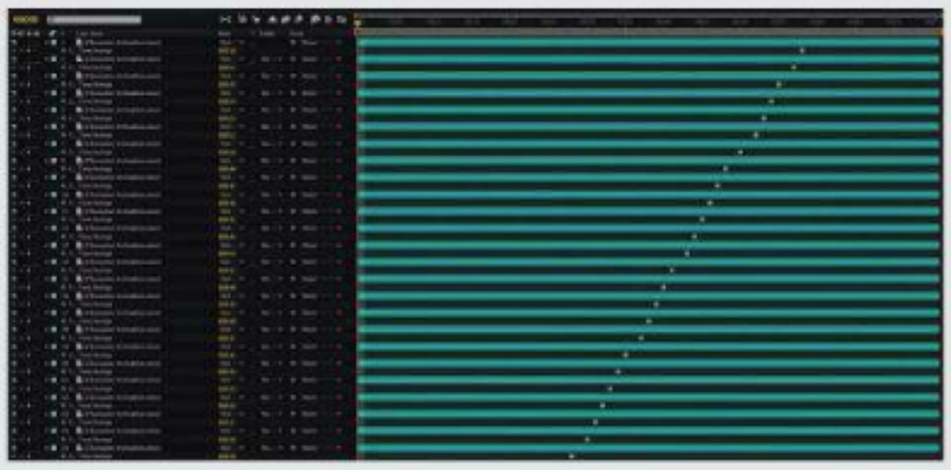


06 Select Character Animation and let's parent it to the background, so we can animate it and make it more interesting. To do that, go into the Parent column and change it from None to the layer you want. With the Character Animation layer parented, let's add one position keyframe on Frame 12, and on Frame 45 let's move the background to fake a camera move.

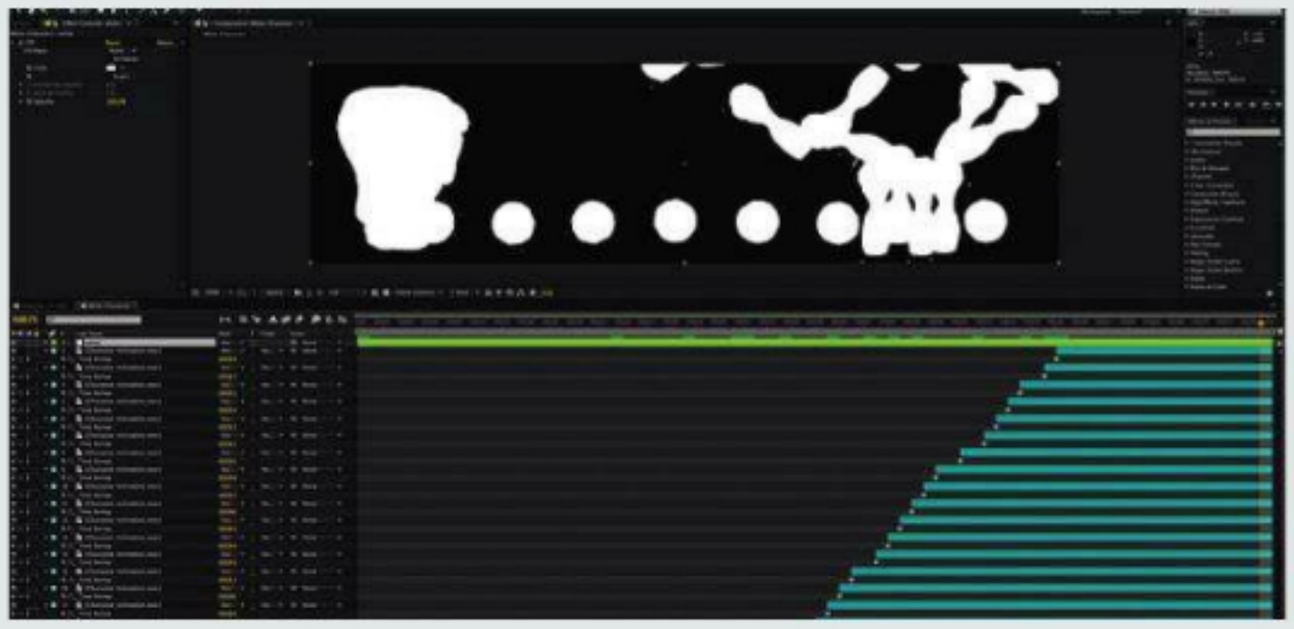


07 Select the keyframes that we just created and add an Easy Ease to them (Animation>Keyframe Assistant>Easy Ease). This will help smooth the keyframes of the animation. To make it a bit more real, we will add a simple wiggle expression to the position property of the background. Alt/Opt+click on the Stopwatch symbol next to the position. In the Expression Box, enter the code: wiggle (3,5) to make it shake a bit.

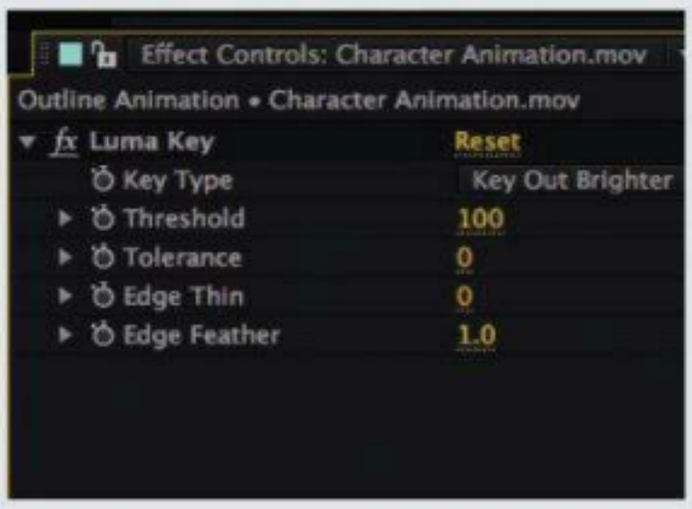
08 The top of the animation is going to come off the brick wall, so to fix it we'll create a solid (Layer>New>Solid) and name it 'Animation Matte'. It can be any colour. Then make a mask to cover the outside area of the brick wall, and add 1 pixel of feather. Select the Character Animation Layer, and in the Track Matte dialogue choose 'Alpha Inverted Matte Animation Matte'. I used Track Matte here because the Corner Pin effect changes the perspective of the layer, making it a bit tricky to mask. →



09 For the white paint we will duplicate Character Animation Composition (Ctrl/Cmd+D) and name it 'White Animation'. Open the composition and duplicate the Character Animation layer 35 times (as we have 35 animated frames). To freeze the layers one by one, select layer 35 and on the first frame of the composition go to Layer>Time>Freeze Frame. Go to the next animation frame and freeze the layer above, and carry on until you have one animation frame for each layer.



10 Now we will crop the beginning of each layer. Select all the layers (Ctrl/Cmd+A) and press U on your keyboard to show all the keyframes. In each layer, go to the frame where the keyframes are, and crop it (Alt/Opt+[). To finish this part, add an adjustment layer on top of all the layers to affect those underneath (Layer>New> Adjustment Layer), name it 'white' and add a white fill effect (Effect>Generate>Fill).



11 Next, we will make the outlines, so duplicate White Animation Composition and name it 'Outline Animation'. Open the Composition and delete the adjustment layer, as we need to apply the new effect to each layer individually to be able to see all the outlines. To key the white out, we will use Luma Key (Effect>Keying>Luma Key). Change Key Type to Key Out Brighter, Threshold to 100, and Edge Feather to 1. Copy the Effect and paste to all layers.

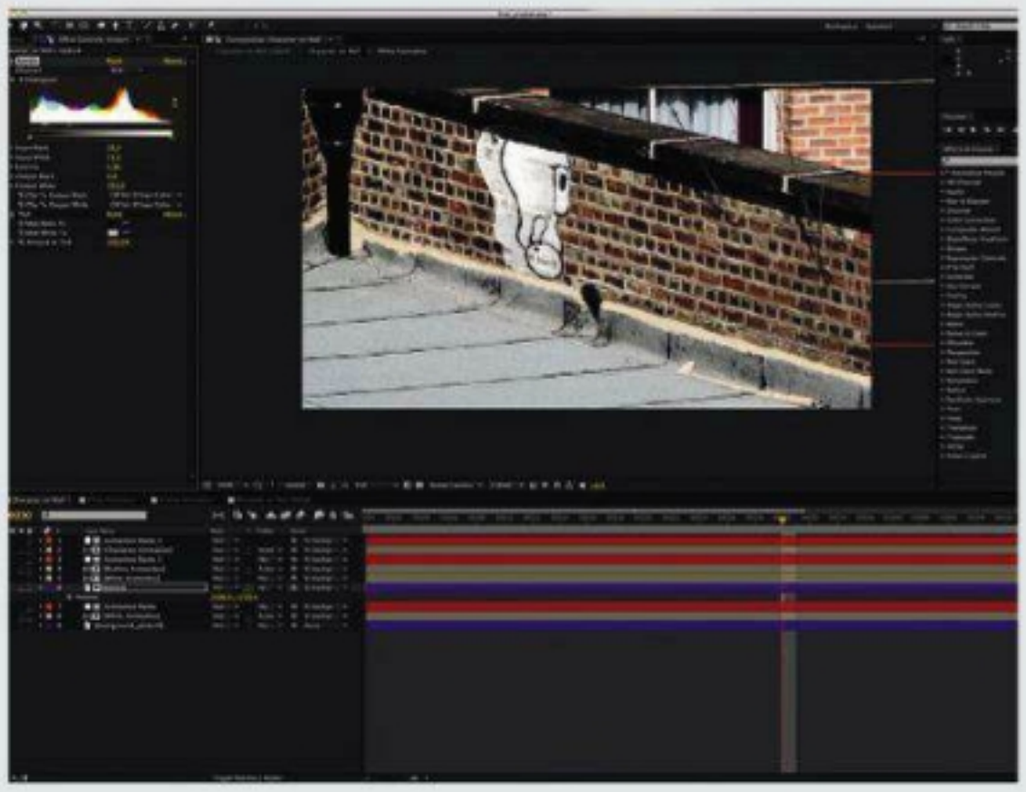
14 We now need to bring some texture from the brick wall back to make it look more realistic. Duplicate the background_plate.tif layer (Ctrl/Cmd+D), name it 'texture' and move it above the White Animation layer and the Matte layer. On the first frame of the composition, delete the wiggle expression and all the position keyframes by selecting the expression text and pressing delete on your keyboard. Then parent the layer as we did before to the background_plate.tif, so that they have the same animation.

12 Select the Matte and the Animation layers on the Character On Wall composition and duplicate twice (Ctrl/Cmd+D). Select the last pre-comp (layer 6) and, holding Alt/Opt, drag the White Animation composition from the Project panel and drop it on top of layer 6 in the timeline. It will change the layer for the new one, keeping all the current attributes. Do the same with Outline Animation, but drop it onto the pre-comp that you have on layer 4.

13 Now add a fast blur to the Outline Animation layer (Effect>Blur & Sharpen>Fast Blur) with a Blurriness of 20, and change Blur Dimensions to Horizontal. Bring the Opacity of the layer down to 30% to make it look more real. Now copy (Ctrl/Cmd+C) the Luma Key effect from the layer of the Outline Animation composition and paste (Ctrl/Cmd+P) it on the Character Animation layer, so we have only the outlines.

Stay organised

The best advice I can give, and always give, is to keep your project organised, especially when you're working with compositing. It makes your workflow faster and more efficient.



15 Next, as we did when masking, duplicate the White Animation layer and use Alpha Matte for the texture. On the texture layer, add a Level effect (Effect>Color Correction> Level) and a Tint effect (Effect> Color Correction>Tint). For Level, set Input Black to 26, Input White to 71 and Gamma to 2.8, and for Tint set Map White to R-207, G-193 and B-181. And to finish, change the blending mode of the layer to Pin Light so it looks more realistic.

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Image from *Designing a Female Android in Photoshop CS5*

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Brand New School

Renowned for unveiling animation techniques on any screen that can handle its innovative graphics, Brand New School is on the up. We get a lesson in style...

Jonathan Notaro
Founder and executive creative director
After graduating from the California Institute of the Arts and working as an art director at Razorfish, Notaro founded Brand New School in 2000, where he is now executive creative director.
www.brandnewschool.com

Danny Rosenbloom
Managing director
Rosenbloom joined Brand New School as executive producer in 2007. He has worked at Psyop and Razorfish, and studied at North Carolina School of the Arts, University of North Carolina and Brown University.

Justin Baske
Interactive director
Before joining in 2010, Justin ran the Studio of Interactive Media, where he collaborated with BNS on many projects. He studied at Minneapolis College of Art and Design, and holds an MFA in graphic design.

Prolific motion graphics house Brand New School has one underlying remit: it delivers content for anything that remotely resembles a screen. Its latest project features one of its biggest screens yet – 80 feet long, nine feet high, and driven by eight networked computers.

This huge, interactive design project was assembled for the Center for Total Health in Washington DC, and paid for by US health insurance firm Kaiser Permanente. According to Brand New School's interactive director Justin Baske, the creation is so big you can't just stand back to appreciate it: you have to stroll around it. This is fitting – the 80-foot touchscreen presentation is dedicated to the benefits of walking, and the development of 'walkable' communities. "It was really interesting to work on a project displayed at this scale," Baske reflects. "When you approach it, it's really much bigger than you. You have to physically move your body to explore all of the content."

Brand New School has done animation work for the smallest screens too: low-res, low-colour, pre-iPhone mobiles, for instance. However, you don't have to spend much time talking with founder Jonathan Notaro to realise that ideas, rather than screens, are what it's all about. Creativity is what the team wants in new recruits. "We like thinkers, dreamers, and people who love art," he proclaims. "Talent and compatibility go hand-in-hand in a collaborative environment. A strong process is also an important attribute in a potential hire, and it's very difficult to teach that in a working environment."

When Brand New School started in 2000, motion graphics wasn't a term you heard very often. The agency grew up alongside this new genre, amalgamating animation, design and visual effects using digital tools. As well as leading the way creatively, Brand New School is also a business success, with studios in Los Angeles, New York and London. And browsing the Brand New School site provides excellent graphical variety, and will point you towards the cutting edge of the industry.

One of the agency's defining projects was for MTV's *Fashionably Loud* show, late in 2000, and involved musicians Moby and Gwen Stefani, catwalk models, photography and plenty of colourful animated patterns and backgrounds. →

Pro software skills: After Effects

01 This Brand New School installation is an 80-foot long touchscreen at the Center for Total Health in Washington DC. The project tells America about walking as part of a healthy lifestyle

02 Brand New School made 14 different idents for Cartoon Network's 2010 rebrand. Each was created using a different style or animation technique

03 After launching in 2000, Brand New School won a key brief from MTV to create graphics for the series ***Fashionably Loud***. "I think this project was defining," says Notaro. "We had done a few small things here and there, but this was larger. Creatively, it really got people in the community talking."

04 Brand New School created the first series of **idents for FUEL TV** in 2003, and advised the channel to continually commission new ones with different designers, filmmakers and artists

02

→ These spots broke Brand New School into broadcast, leading to further work with MTV, VH1 and many other channels.

A fantastic example of the Brand New School approach is its identity work for Fox's FUEL TV, a sports channel featuring everything from wakeboarding to dirt bikes. In 2003, the agency gave the broadcaster its initial look and feel, and in 2010 the team went back to reinvent it. "We suggested that the network introduce a 'Free Form Film Festival', where every ID is unique, instead of following channel-wide guidelines," explains Notaro. "This anti-brand approach involved using 10 IDs, with tones ranging from comedic to contemplative to musical, and with techniques ranging from film to stop-motion to CG," he continues.

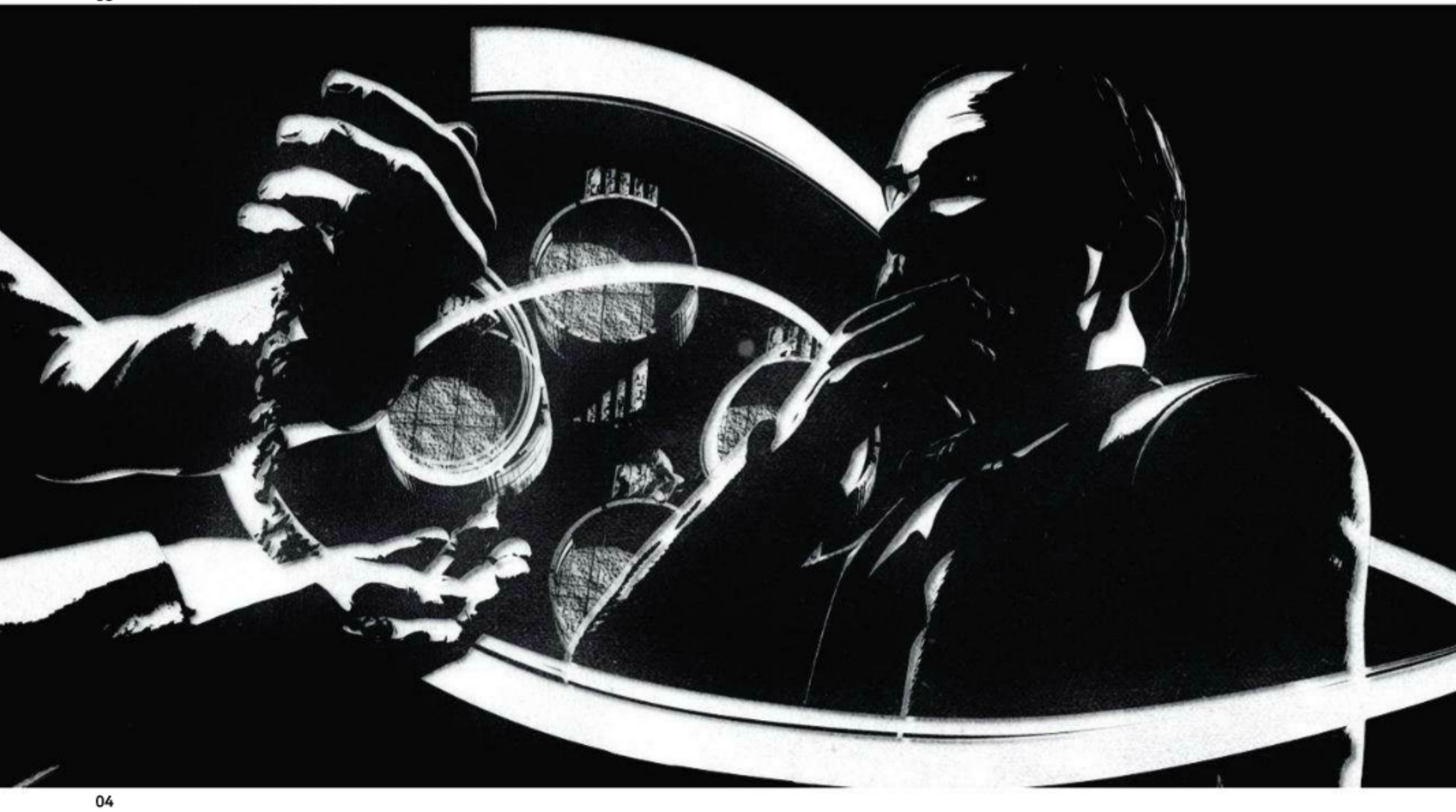
FUEL TV followed the advice and, after using the 10 pieces created by Brand New School, commissioned other design studios and filmmakers to make new idents in an array of styles. The channel has won plenty of awards along the way and, in 2010, when it was time for a rethink, it returned to Brand New School. This time, Notaro moved away from the paint, ink and doodle-based ethos, opting for a '90s retro digital aesthetic instead.

"The concept for the broadcast graphics was essentially to create a machine that would generate new artwork from all the fantastic FUEL TV station IDs that artists from all over the world have made, and to treat that video stylistically," he recalls. "Internally referring to the technique as 'datamoshing', our artists designed their own visual language. Just as the art's initial visual inspiration comes from digital compression visible on web videos, the graphic design and typography follows the crudeness of HTML type and Myspace layouts."

The Brand New School revamp of Cartoon Network is another example of broadcast work that has previously appeared in *Computer Arts*. Alongside projects for TV stations, Brand New School has also completed stunning commercial work for Microsoft (the Creature Creator Facebook app), Adobe (Creative Suite), Apple (the iPod Shuffle) and Jack Daniel's. Who can forget those sublime white-on-black line animations inspired by the whiskey's label design? →

Pro software skills: After Effects

03



04

05 Brand New School vows it will create work for any screen. For the Coca-Cola display at LA Live, the screens featured LA residents doing various activities in front of a backdrop for Coca-Cola

06 The agency's first interactive installation was created for **Adobe** in 2007. "It was unlike anything people had seen before and was a sublime advertising tool," says Notaro

07 When Brand New School came up with the graphics and identity for FUEL TV in 2003, the aesthetic for Fox's newly launched channel was all about inky splodges and dripping paint

08 The black-and-white linework in the **Jack Daniel's television commercials** was inspired by the whiskey brand's bottle label

05

06

07

09

→ When it's a corporate client, Brand New School usually works with an advertising agency, while broadcast and some other projects are done directly with the client. "Agencies provide a really meaningful buffer for commercial work," explains Brand New School's managing director Danny Rosenbloom. "Often their relationships with the client, that client's particular history, and the rest of the work being done for their brand make for shorthand that helps in the process.

"But we've also worked with clients directly who needed a lot more of the support a traditional agency would bring to the table. One nice aspect of working directly with the client is that you're dealing with the people who make the final decisions.

"You never really question their singular allegiance to their product or brand, and in the end that usually makes the process pretty streamlined. Those relationships also give us the opportunity to get more involved at an elemental or strategic level, which is fun."

As Rosenbloom points out, one of the things that makes the company tick is collaboration. Animators, designers and FX experts work with directors and producers in differing combinations with each project. A creative brief could involve a crowd of people in the LA, New York or London studio, even though a small team will execute the project. Brand New School encourages plenty of mixing between the three cities, and there are apartment swap schemes to facilitate this. The agency is moving away from the 16-hour day that's so common in the industry at the moment. "We've got hours when you're there, and also hours when you're not – radical, huh?" says Rosenbloom. "You can do things like go out to dinner, see movies and, y'know, live."

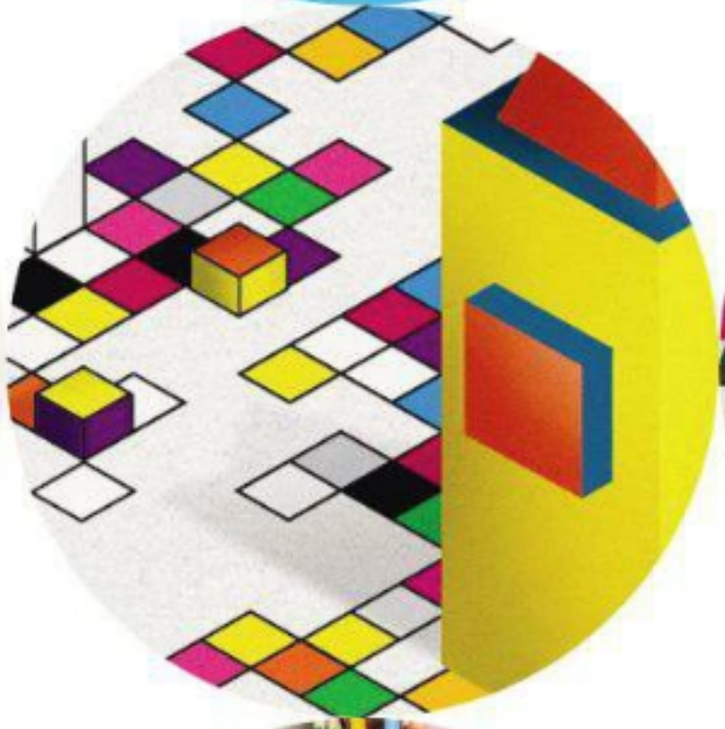
All these measures help Brand New School keep its thinking fresh, so the team can adapt to new opportunities and present work in innovative styles. "We have the same challenges we've always had," says Notaro. "We need to continue to reinvent, and stay inspired to do so, while remaining honest to ourselves."

Pro software skills: After Effects

08

09 Zany colour filters à la 1993, crummy HTML typography, digital error screens and primitive Myspace layouts were the inspiration for the **new FUEL TV look**. It was dubbed 'datamoshing'

My Portfolio



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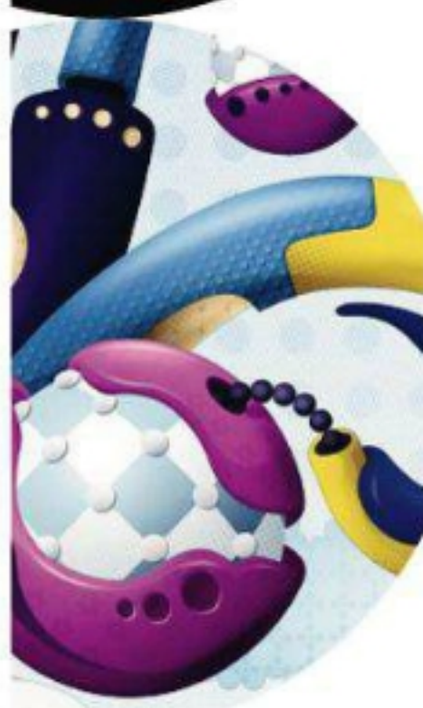


THE AFTER EFFECTS INTERFACE: IN-DEPTH

The After Effects interface has a myriad of panels – here's your complete guide to them and what they do...

With a mass of tools and panels, the After Effects interface is – with the exception of Premiere – very different to any of the apps in Creative Suite. Sure, it may feel familiar to Flash users due to its timeline-based approach, but in reality it's very, very different. And even to the pro designer used to using Adobe's suite of tools, it can prove to be extremely daunting.

So, if you're a CS user moving into motion graphics for the first time, or a motion graphics artist coming over from another application, here's a handy guide to all of After Effects' panels and what to find in them.

On this page, you'll see the most common After Effects panels, with the rest following over the page.

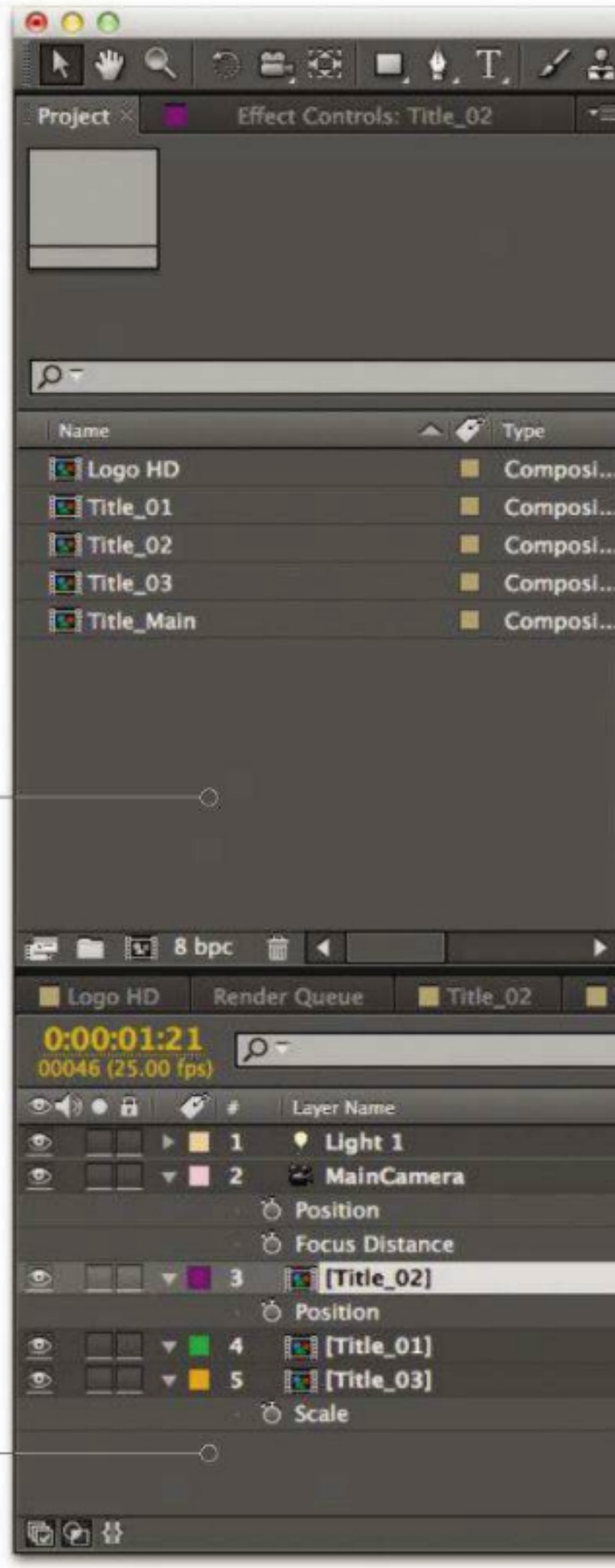
We've also included a guide to all of the tools on page 110 – giving you the low down on what each of them do and how you can use them within your motion graphics projects. Keep it to hand as an invaluable reference guide to the AE interface.

PROJECT PANEL (CTRL/CMD+0)

The Project panel displays all the assets in your current project – including footage, compositions, audio and image files. You can search for an asset and see the type, duration, file path and more. You can also change composition and project settings – as well as create new folders for assets, and delete assets – at the bottom of the panel.

TIMELINE

The heart of the After Effects interface. It's here that you structure your projects and animate and manipulate effects, cameras, footage and more using keyframes or expressions (you can swap the timeline to the Graph Editor by using the button to the top-right of the Timeline panel). See our complete guide to the Timeline on page 10.

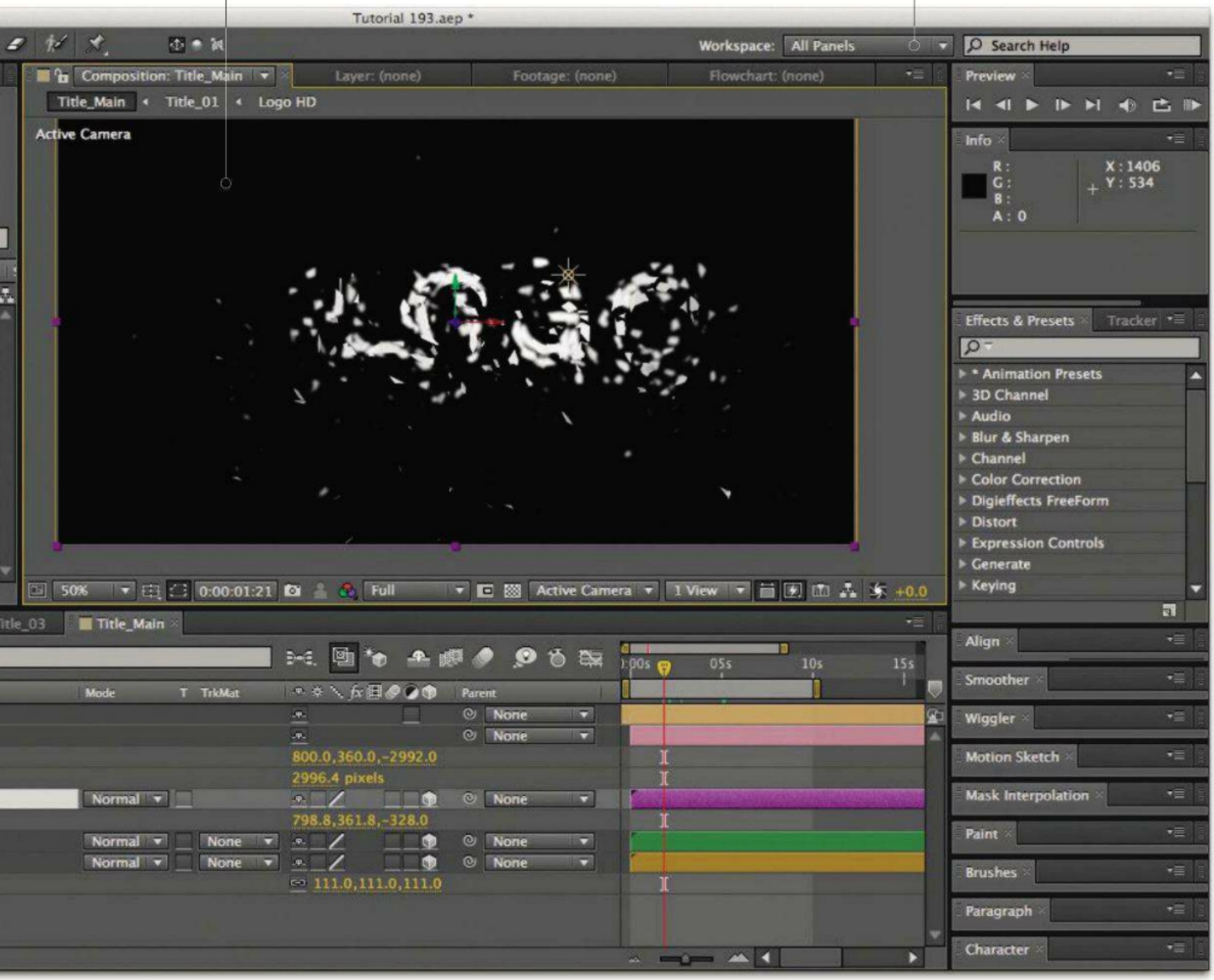


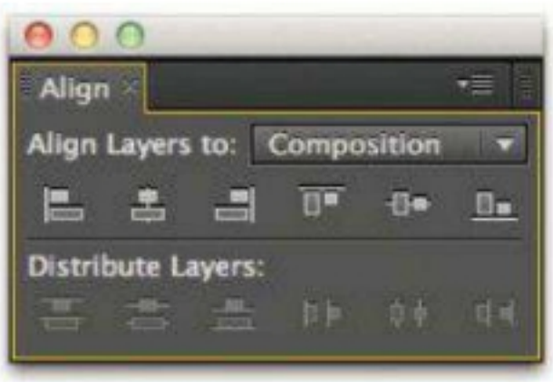
COMPOSITION

The Composition window is where you can preview your compositions, and manipulate the position of cameras, footage, text and so on. Nested compositions appear next to each other above the main Composition window. You can use the small arrow to see a flowchart of the nested comps, or click on each to edit them individually.

WORKSPACE

After Effects comes with many built-in workspaces – meaning you can switch the interface for the particular task you're undertaking. Workspaces include Effects, Paint, Minimal and as seen here, All Panels.





ALIGN

Very much like the InDesign, Illustrator and Photoshop equivalent, the Align panel enables you to align layers to your composition or selection (horizontal left, horizontal center, horizontal right and so on) as well as distribute them accordingly within your composition. Handy if you're working on a structured layout for an interface, for example.

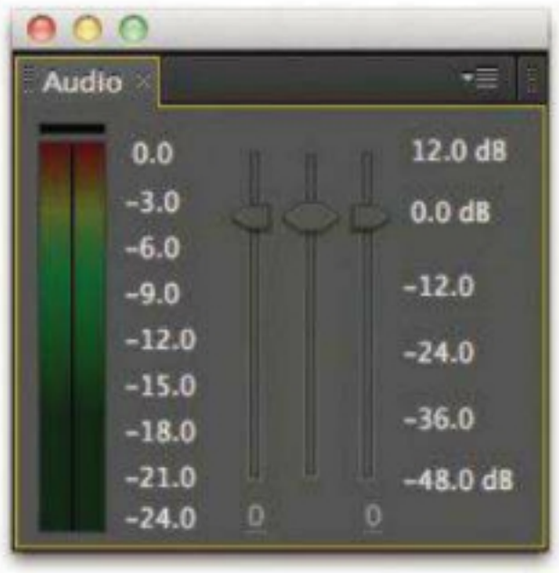
EFFECT CONTROLS

The Effect Controls panel is docked with the Project window by default and enables you to control all the effects in your project. Use the arrows on the left-hand side to expand the lists of different effect and animate properties, then click the stopwatches to add keyframes to your timeline. This is one of the most commonly used panels in AE.

BRUSHES

Keyboard shortcut: Ctrl/Cmd+9

The Brushes panel handily appears when you use a brush-based tool such as the Brush, Eraser or Clone Stamp, and also enables you to specify a brush, brush size, hardness, dynamics and other properties. You can also save and delete brushes from the panel.



AUDIO

Keyboard shortcut: Ctrl/Cmd+4

During previews, the Audio panel displays audio volume levels. At the top of the meter, you can tell whether audio is distorting. You can also control audio levels via the sliders and choose to display audio levels in decibels or percentages using the panel menu.

INTERFACE TIP

DOCKING PANELS FOR CUSTOMISED INTERFACES

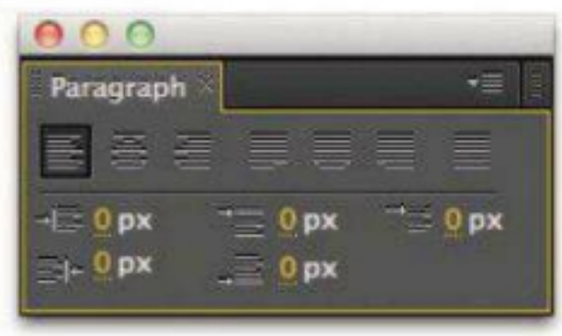
If you find yourself using pairs of panels regularly, or want to group panels together, as with all of Adobe's creative applications you can drag panels onto each other to dock them. However, in After Effects, things work a bit differently. As you drag, a purple trapezoid or square will appear on the panel you're dragging onto.

The position of this trapezoid or square will determine where the panel docks – on the left it will split the panel and create two equal-sized panels, on the bottom it will be below the existing panel and in the centre (this is when the square appears) it will dock the panel you're dragging with the existing one, creating two tabs.

EFFECTS & PRESETS

Keyboard shortcut: Ctrl/Cmd+5

Using this panel you can add effects to your footage and so on. There are a huge range of effects in After Effects – from simple noise to generated fractals. Drop down the categories to get all the effects, or if you know the name of the one you want to apply, start typing its name in the search field at the top of the panel.



PARAGRAPH

Keyboard shortcut: Ctrl/Cmd+7

The Paragraph panel – rather like its counterpart in InDesign and the other design-focused tools in the Creative Suite – enables you to align and indent text when creating titles.

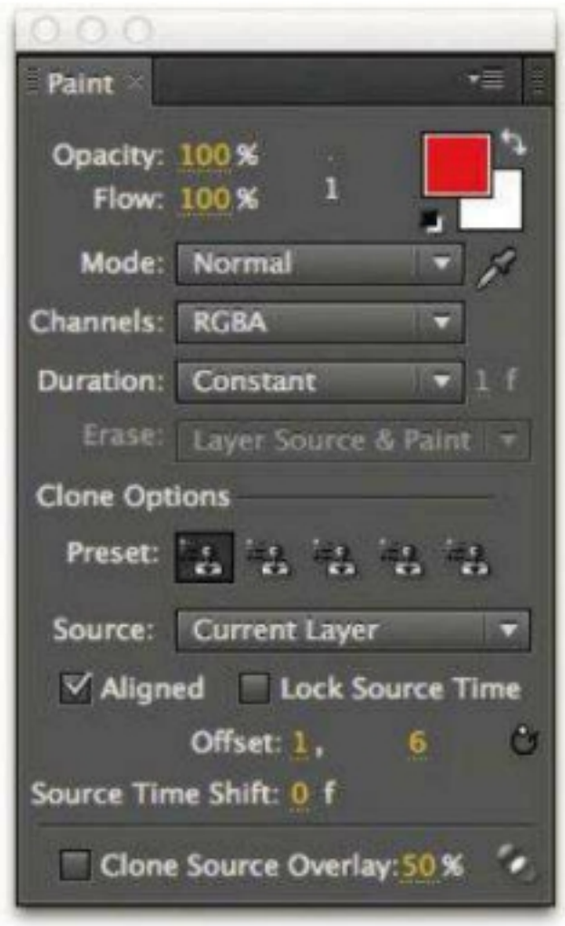
MOTION SKETCH

The Motion Sketch panel is an incredibly useful tool, enabling you to quickly create a motion path for an object or footage by simply hitting the Start Capture button and dragging your object around. Once you're done you can preview the animation and change the motion path by editing the points (or vertices where applicable).

PREVIEW

○ **Keyboard shortcut: Ctrl/Cmd+3**

Use the Preview panel to quickly preview your composition using the normal shuttle controls. You can specify frame rate, resolution and whether the preview runs full-screen and from the current time.



PAINT

○ **Keyboard shortcut: Ctrl/Cmd+8**

The Paint panel enables you to change the opacity, flow, blending mode and other paint properties. It also enables you to, when you have the Clone Stamp tool selected, define cloning sources and whether a clone source overlay is displayed.

INTERFACE TIP

QUICKLY UNDOCK PANELS

If you have a few panels docked together, the easiest way to close that particular panel is by Ctrl/Right-clicking on the top of the panel and choosing the Close Panel option. The Undock panel is also a useful option, enabling you to change the docked panel into a floating window.

INTERFACE TIP

MINIMAL WORKSPACE

The Minimal workspace can be very handy for stripping After Effects back to its core elements – namely the Composition window and the Timeline and previewing your work with no fuss. Of course, if you know the shortcuts for all the panels you can gradually add them back when you need them.

WIGGLER

The Wiggler is an interesting tool, enabling you to add realism to objects or effects. In the panel you can choose to apply to motion or speed (Graph type) as well as Frequency and Magnitude. Most prefer to use the Wiggle expression rather than the panel as it's quicker and more powerful.

INFO

○ **Keyboard shortcut: Ctrl/Cmd+2**

Very simple, this one. The Info panel, like the equivalent in Photoshop and InDesign, gives you a readout of the current RGB value as well as X and Y coordinates. And that's about it. You can change the type of readout using the panel's menu.

RENDER QUEUE

○ **Keyboard shortcut: Ctrl/Cmd+Alt/Opt+0)**

The Render Queue in After Effects is a comprehensive control panel for controlling the rendering your footage and exporting your files.

The panel makes it possible to have many different outputs for one composition – meaning you can render as a .mov, image sequence and other file formats at the same time.

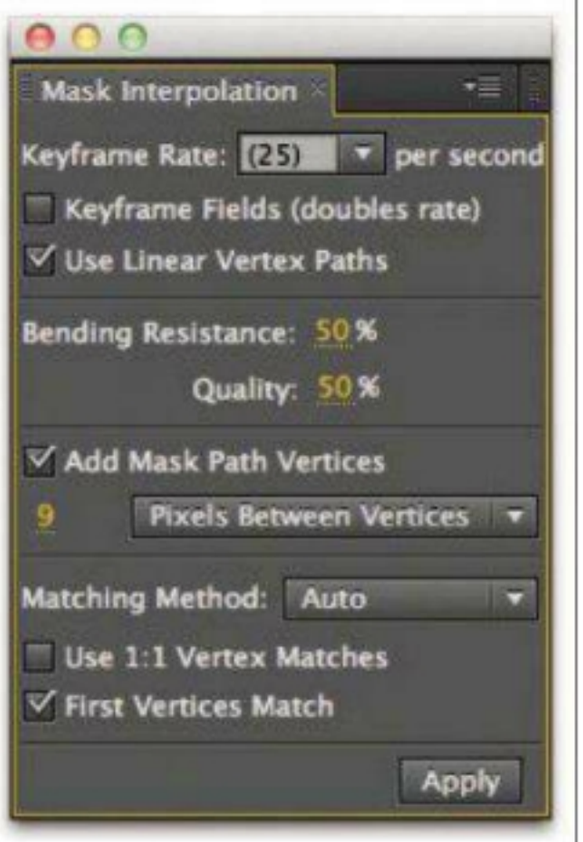
You can also drag items directly to the Render Queue from the Project panel – rendering footage and compositions as you go to speed up your workflow.

The Render Queue panel shows you all of your queued renders in order, and to start a render, you simply select the render you want to start and hit the Render button.

In addition, you can add comments to your renders, change the output settings and much more using this panel – simple navigate through the inline options on the render that you want to edit.

The comprehensive readouts along the bottom of the panel keep you updated with your render status at all times.

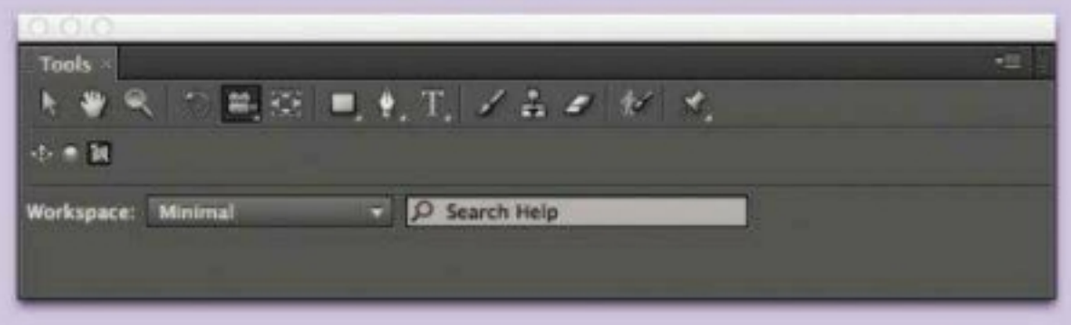
TRACKER
The Tracker panel enables you to set up motion tracking. Use it to track the motion of one object, and then apply the motion data to another object – such as a layer or effect control point. The Tracker panel also enables you to stabilise footage.



MASK INTERPOLATION
The Mask Interpolation panel enables you to animate masks – by selecting at least two adjacent mask path keyframes, you can set AE to create the in-betweens using the settings specified in this panel. It offers a high level of control.

The Tools panel

Here's what each of the tools in the Tools panel does. Hide/reveal the panel by hitting Ctrl/Cmd+1...



The After Effects Tools panel. As you select tools, context-sensitive options will be displayed.

SELECTION TOOL (V)
Use the Selection tool to quickly (and rather unsurprisingly) select and move layers, masks and so on.

HAND TOOL (H)
The easiest way to pan quickly around the Composition window and the Timeline is by using the Hand tool.

ZOOM TOOL (Z)
Zoom in and out of the Composition window using the Zoom tool. Hold down Alt/Opt to zoom out.

ROTATION TOOL (W)
Use the Rotation tool to quickly rotate layers in 2D or 3D (as long as your layer is 3D) in the Composition window.

UNIFIED CAMERA TOOL (C)
This tool controls camera views using a three-button mouse. Open the flyout for individual camera tools.

PAN BEHIND TOOL (Y)
Use the Pan Behind tool to move the content of a masked layer without affecting the mask itself.

RECTANGLE TOOL (Q)
The Rectangle tool is just one of the many Shape tools on offer in After Effects, and you can use them all to draw vector shapes and masks.

PEN TOOL (G)
Use the Pen tool to create shapes, masks or paths for motion. Point editing tools can be found in the flyout.

HORIZONTAL TYPE TOOL (CTRL/CMD+T)
Quickly create text to be used for titles, masks and so on – with more options available in the flyout.

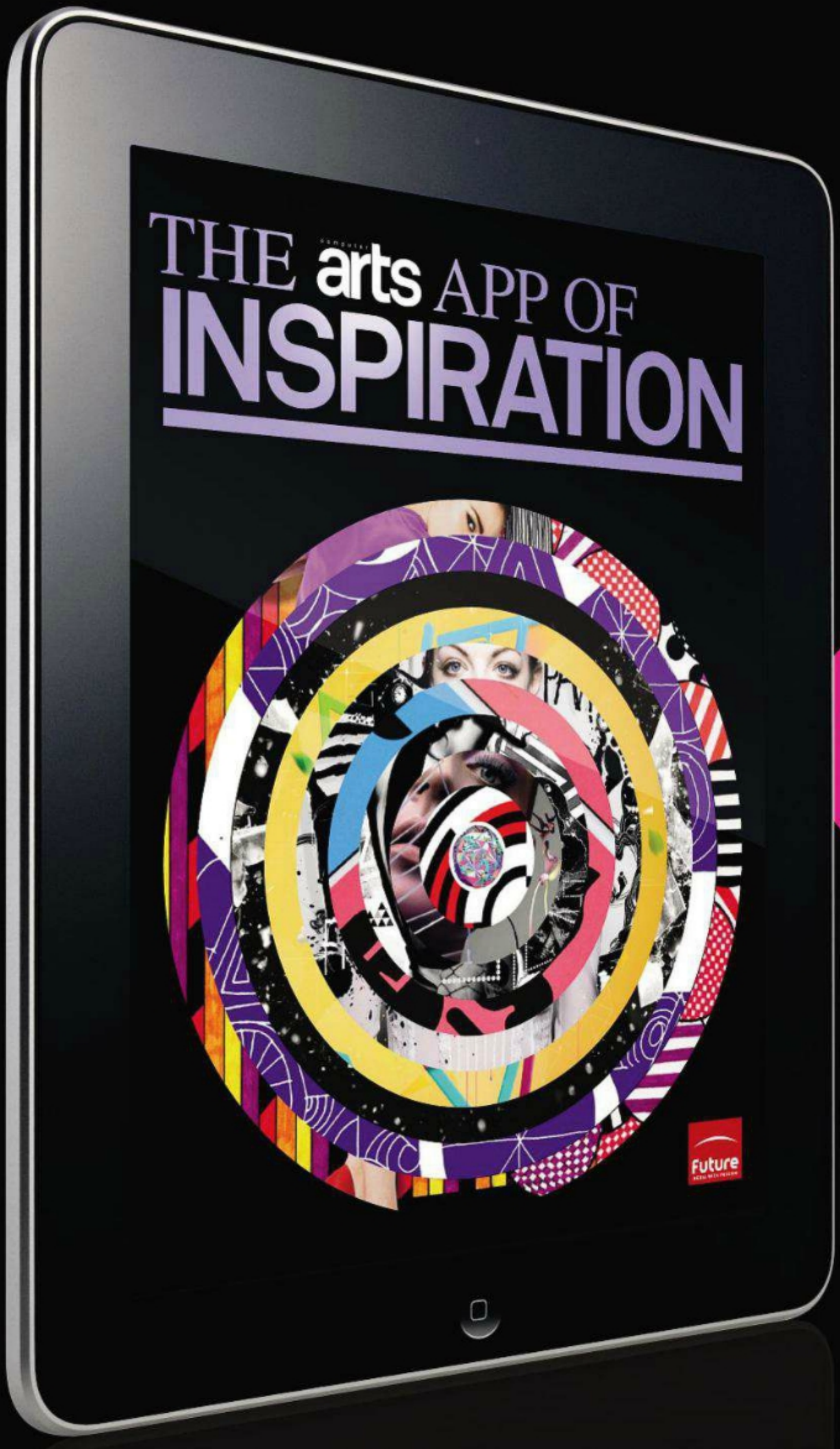
BRUSH TOOL (CTRL/CMD+B)
Use the Brush tool to paint on your footage – brush size and so on is controlled via the Brush panel.

CLONE TOOL
Like in Photoshop, use the Clone tool to quickly clone out areas of your footage. Controlled via the Brush panel.

ERASER TOOL
A familiar tool, use the Eraser to remove parts of your footage. Controlled via the Brush panel.

ROTO-BRUSH TOOL (ALT/OPT+W)
New to CS5, this fantastic tool enables you to quickly isolate moving objects from their backgrounds.

PUPPET PIN TOOL (CTRL/CMD+P)
Use the Puppet Pin tool to quickly animate cartoon (or other) characters by adding points (or pins) and moving them over time.



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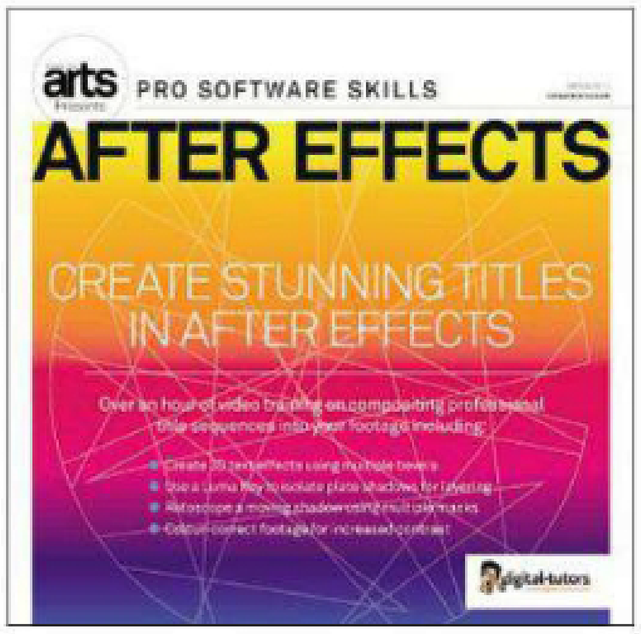
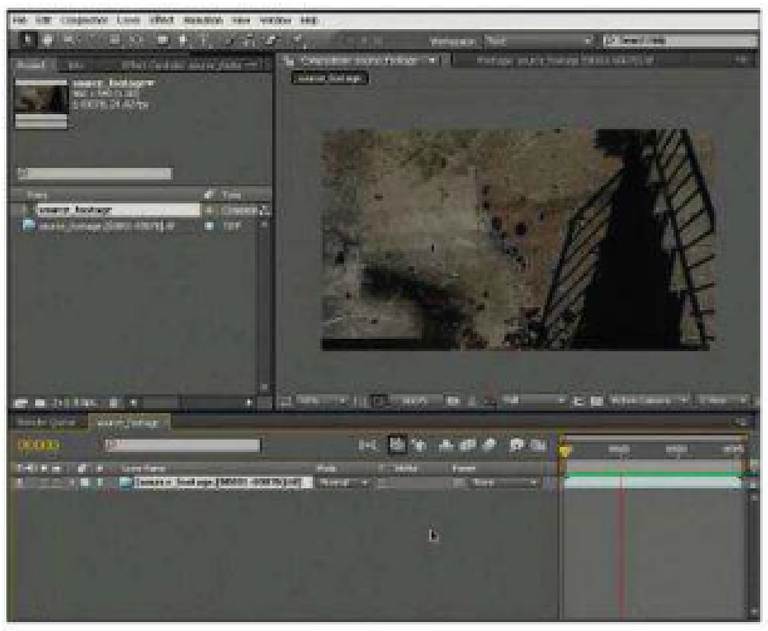


Titling is such an integral part of any motion graphics project – and it's also one of the hardest things to get right. The pro video lesson on the disc included with this magazine – from the experts at Digital-Tutors – shows you how to create fantastic titles, integrating them with your footage.

Elsewhere on the disc you'll find some great resources, including all the files you need to complete the tutorials in this issue. There's also a trial version of the incredibly popular (and powerful) After Effects plug-in, Trapcode Suite, from Red Giant Software.

STUNNING TITLES IN AFTER EFFECTS: EXCLUSIVE VIDEO TUITION

Over an hour of pro video training on compositing titles from Digital-Tutors

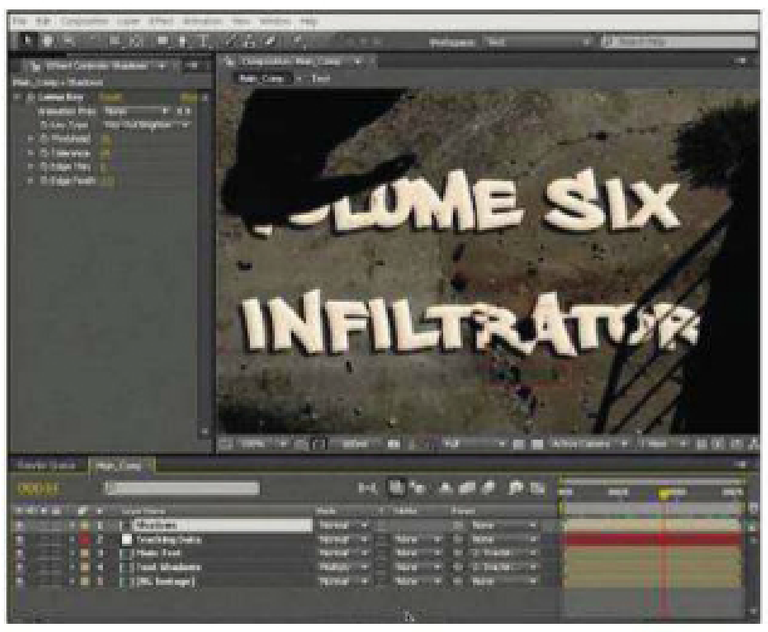


Setting it all up

Importing your background plate and making sure it's ready for your titles

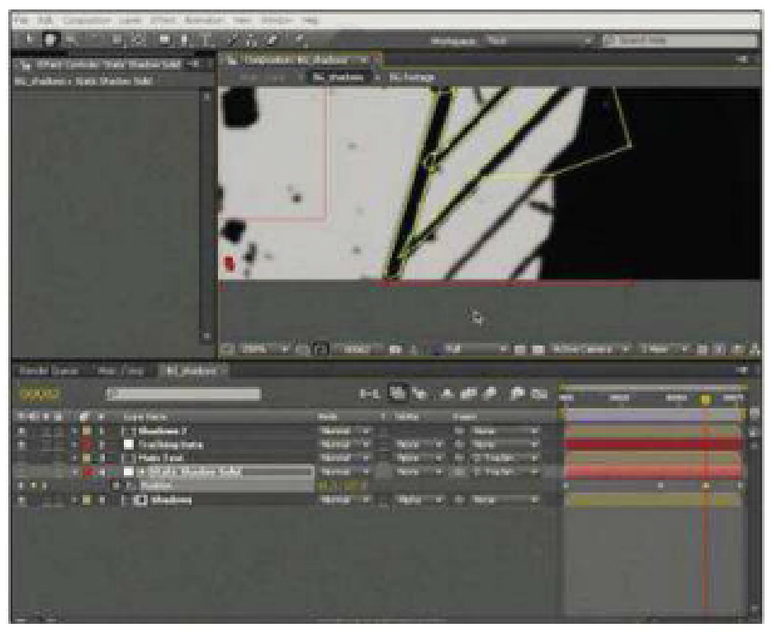
Tracking the plate

Quickly track the background plate and apply it to a null layer



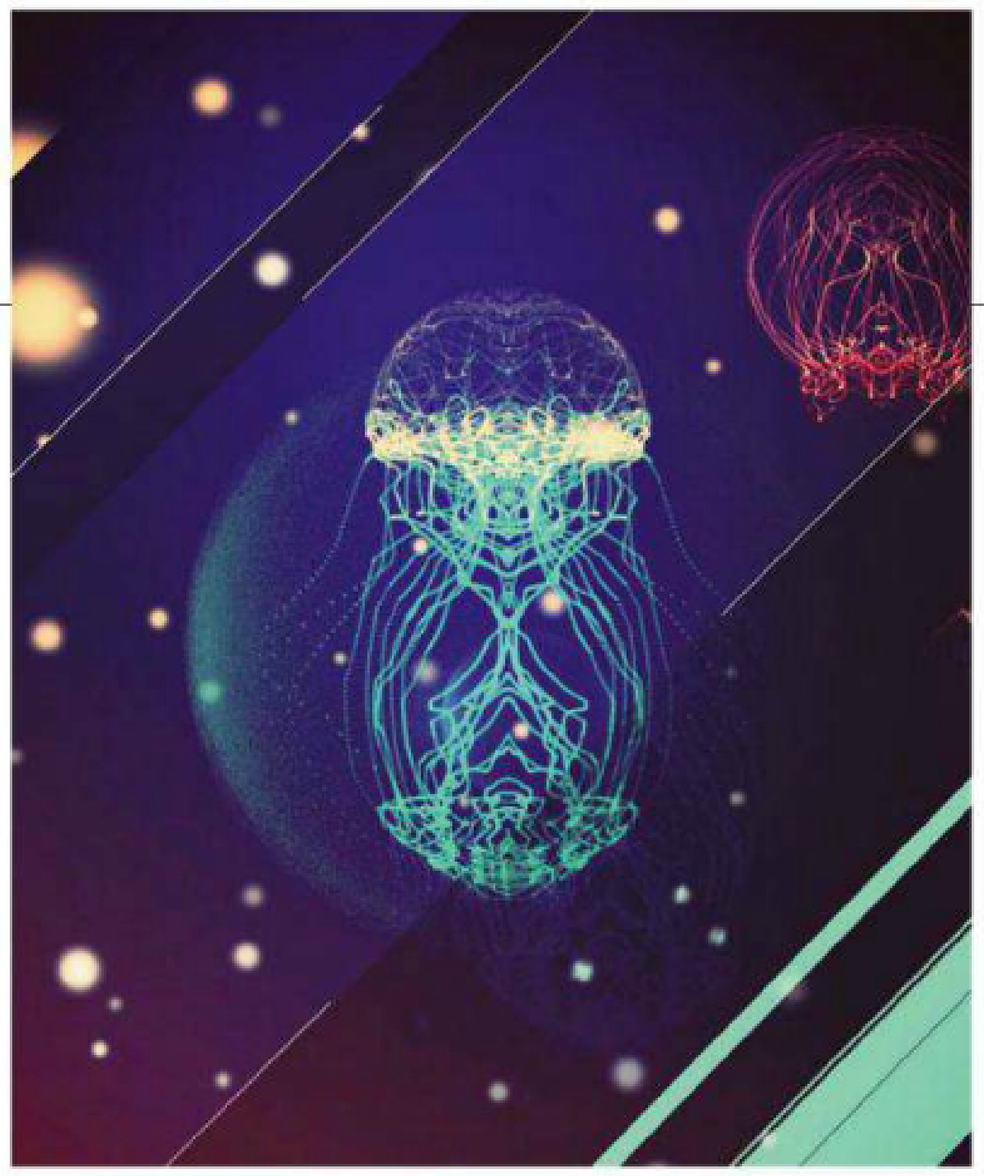
Get intricate with Luma Keys

Discover how to use a Luma Key to isolate plate shadows for layering



Rotoscoping revealed!

The secrets of rotoscoping a moving shadow using multiple masks. And more!



01

01 Incredible motion graphics work from New York-based **Vivian Kim**. Read all about the artist's work on page 66

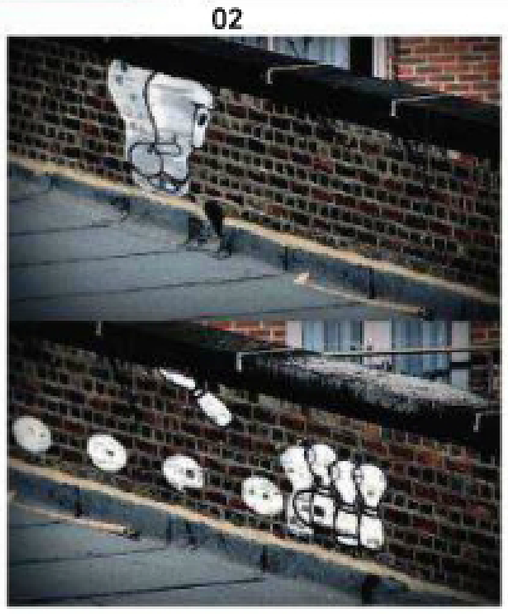
02-03 Ben Adam, aka **Broken Antler**'s stunning work. See how he created the shot in 03 in our tutorial beginning on page 90

04 Thiago Maia brings you the skills you need to put animated characters into real-world footage. See the tutorial on page 94

05-06 Discover the secrets of how to quickly animate objects **using Expressions** on page 60

02

03



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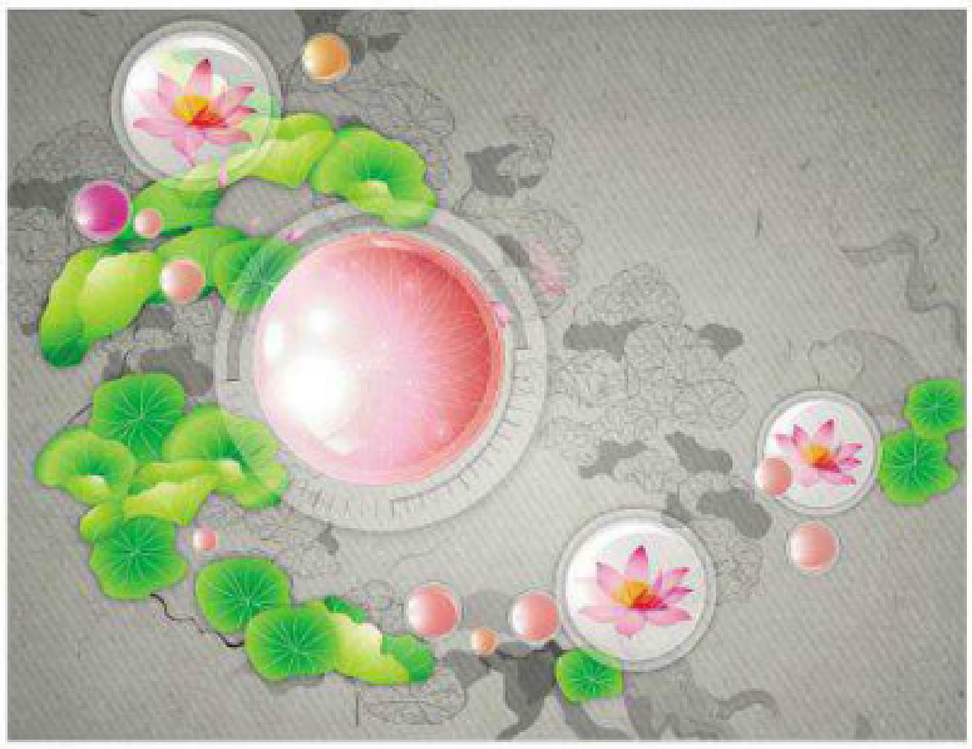

05

06

GALLERIES

Broken Antler
A selection of stills from Ben Adam's incredible motion portfolio

Vivian Kim
The New York-based motion graphics artist's amazing particle-infused creations

Brand New School
Awe-inspiring work from this top motion graphics studio

Mainframe
The London and Manchester-based motion graphics and animation studio's top projects

RESOURCES

Animate using Expressions
Manipulate layer properties and effects to dramatically improve your workflow

Experiment with particle effects
Create some beautiful and unexpected results using Trapcode and AE

Simulate smashing glass
Use the Shatter plug-in to quickly create shatter effects in 3D space

Green screen shots made simple
Take the pain out of keying with this expert guide from Ben Adam

Trapcode Suite (demo)
Trial version of Red Giant Software's amazing After Effects plug-in suite

arts Presents

PRO SOFTWARE SKILLS

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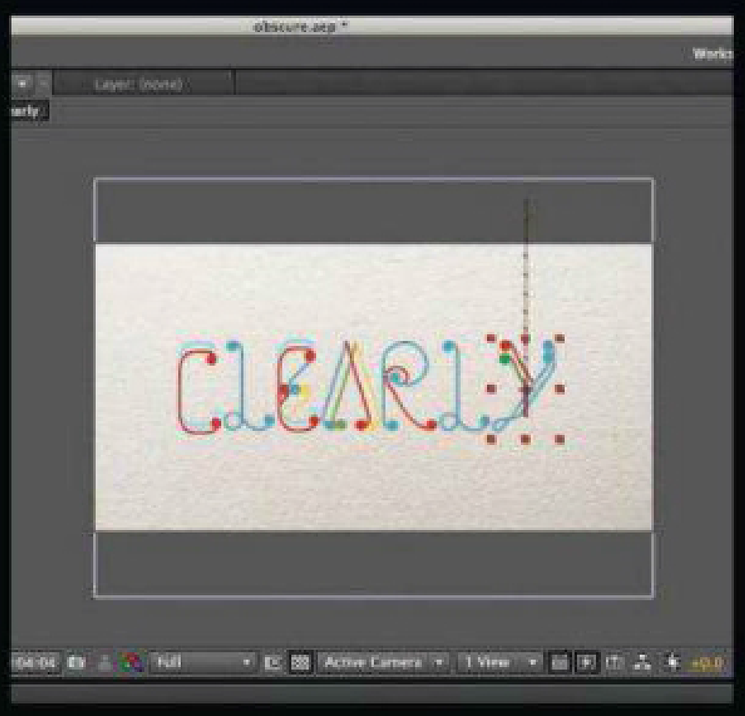
PRO SOFTWARE SKILLS

AFTER EFFECTS

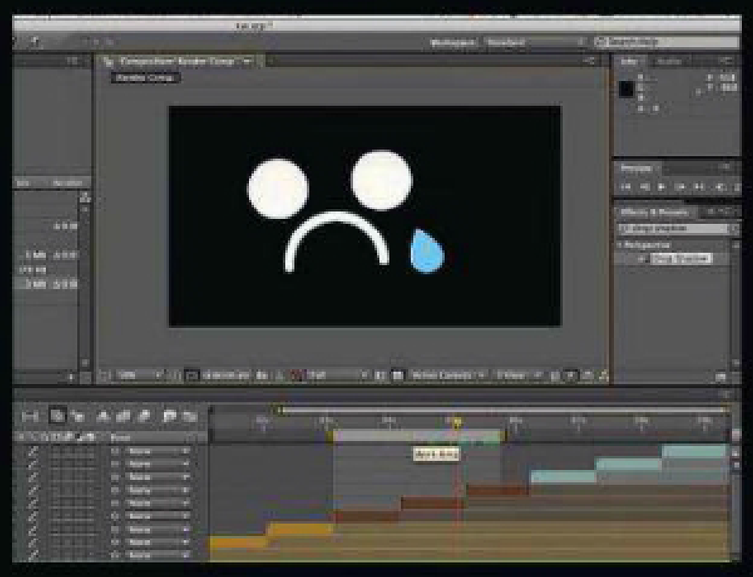
Work faster and smarter in After Effects

Expert guides

- Discover the power of After Effects **expressions** and how to use them in your workflow



- Create **brilliant title sequences** every single time!
- Use **the timeline** much more effectively and shave hours off your projects



- Work with **effects** to create stunning motion graphics in no time at all!

Ultimate inspiration

- Motion graphics and animation studio **Mainframe** on how it mixes live action with 2D and 3D

- Meet **Brand New School** – motion graphics supremos
- With clients including Jaguar and IBM, Ben Adam – aka **Broken Antler** – is making motion waves
- **Vivian Kim's** stunning ethereal motion graphics work

Pro techniques

- All-new ways to make After Effects **work harder** for you
- Master the fine and dark art of **compositing**

- 50 incredible tips for making your **animations** better than ever
- Use **expressions** to create stunning, fluid animations

- Create complex shatter effects using **3D cameras**
- Design and animate **stylish characters** with ease

- Master **luma keying and green screen** techniques